



# ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-2829

PAT QUINN, GOVERNOR

LISA BONNETT, DIRECTOR

217/524-3300

March 25, 2014

CERTIFIED MAIL

7012 0470 0001 2999 2506

7012 0470 0001 3000 1396

BFI Waste Systems of North America, LLC  
Attn: Bryan Zimmerman  
26 W 580 Shick Road  
Hanover Park, Illinois 60103

Veolia ES Zion Landfill, Inc.  
Attn: James M. Reavy  
701 Green Bay Road  
Zion, Illinois 60099

Re: 0978020001 -- Lake County  
Zion Site 1 Landfill  
ILD980700728  
Log No. B-23R-M-3  
RCRA Permits  
Permit Approval

Dear Mr. Zimmerman and Mr. Reavy:

This letter is in response to the Class I\* permit modification request, dated November 15, 2013 and received by the Illinois EPA on November 18, 2013. This document was submitted by Joseph Miller, P.G. of Environmental Information Logistics, LLC (EIL) on behalf of BFI Waste Systems of North America, LLC (BFI), operator, and Advanced Disposal Services Zion Landfill, Inc. as the owner. This modification request proposes background values for List G2 parameters for the detection and shallow zone observation monitoring program wells.

The Illinois EPA has reviewed the information contained in your submittal and hereby approves the request for modification. This determination was based on our review of (1) the RCRA Post-Closure Permit issued for the above referenced facility; (2) the regulations [35 IAC Subtitle G]; and (3) the information contained in your submittal. Operations at the above referenced facility must be conducted in accordance with the RCRA Post-Closure Permit and all subsequent approved modifications.

A revised RCRA Post-Closure Permit is attached. List G2 –Annual Groundwater Sampling, found in Section IV, Condition E(1) and Section IV-A, Condition D(1) of the permit has been modified to include the proposed Background Groundwater Quality values (BGQs). A typo in the notation at the end of List G1- Semi-Annual Groundwater Sampling (Section IV, Condition E(1)) referenced well G123 rather than the correct well designation of R126. This notation now reads “\*\* BGQs Specific Conductance in Well R126 (2495 micromhos/cm).” In addition, a description of this permit modification request (Log No. B-23R-M-3) has been added to Section II of the permit. Section II identifies the documents/applications that comprise the approved permit application for this permit.

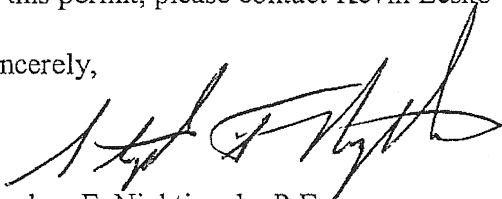
Mr. Zimmerman and Mr. Reavy  
Log No. B-23R-M-3  
Page 2

Pursuant to 35 Ill. Adm. Code 703.281(a)(2), the permittee must send a notice of this modification to all persons on the facility mailing list, maintained by the Illinois EPA in accordance with 35 Ill. Adm. Code 705.163(a)(4), and the appropriate units of state and local government as specified in 35 Ill. Adm. Code 705.163(a)(5). For a Class I\* modification the notice must be made within 90 calendar days after the Illinois EPA approves the request.

Work required by this permit, your application or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. This permit does not relieve anyone from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definitions of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

If you have any questions concerning the groundwater related aspects of this permit, please contact Paula Stine of my staff at 217/524-3861. If you have questions regarding other aspects of this permit, please contact Kevin Lesko at 217/524-3271.

Sincerely,



Stephen F. Nightingale, P.E.  
Manager, Permit Section  
Bureau of Land

SFN:KL:0978020001-RCRA-M23RM3-Approval.docx

KL PS JEN JEM  
Attachments: Hazardous Waste Management RCRA Post-Closure Permit

cc: Jim Hitzeroth, BFI  
USEPA Region V  
Joseph Miller, P.G. Environmental Information Logistics, LLC  
Eric Ballenger, BFI



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PAT QUINN, GOVERNOR

LISA BONNETT, DIRECTOR

## HAZARDOUS WASTE MANAGEMENT RCRA POST-CLOSURE PERMIT

0978020001 – Lake County  
Zion Site 1 Landfill  
ILD980700728  
Log No. B-23R-M-3  
RCRA Permits

Issue Date: September 30, 2011  
Effective Date: November 4, 2011  
Expiration Date: November 4, 2021  
Modification Date: March 25, 2014

OPERATOR:  
BFI Waste Systems of North America, LLC  
Attn: Bryan Zimmerman  
26 W 580 Shick Road  
Hanover Park, Illinois 60103

OWNER:  
Veolia ES Zion Landfill, Inc.  
Attn: James M. Reavy  
701 Green Bay Road  
Zion, Illinois 60099

A RCRA post-closure permit is hereby granted pursuant to the Resource Conservation and Recovery Act, the Illinois Environmental Protection Act, and Title 35 Illinois Administrative Code (IAC) 702, 703, 705, and 720 through 729 to BFI Waste Systems of North America, LLC to provide post-closure care for a closed landfill at the Zion Site 1 Landfill facility located at 701 Green Bay Road, Zion Illinois. This landfill, referred to as the Phase A landfill, is approximately 40 acres in size and operated between 1976 and 1993. Illinois EPA initially issued a permit for this landfill in 1976 and then issued it a RCRA permit in 1988. The landfill received mainly non-hazardous waste but did also receive some hazardous waste; it was certified closed on February 10, 1998 (and thus the thirty-year post-closure care period for the landfill began on that date).

This permit consists of the conditions contained in the eight sections and two attachments which follow and the applicable regulations contained in the Illinois Environmental Protection Act and 35 IAC 702, 703, 705 and 720 through 729 in effect on the effective date of this permit. The Environmental Protection Act (Ill. Rev. Stat., Chapter 111 1/2, Section 1039) grants the Illinois EPA the authority to impose conditions on permits which are issued.

This permit is issued based on the information contained in the approved permit application as described in Section II of this permit. Any inaccuracies found in this information may be grounds for the termination or modification of this permit (see 35 IAC 702.186 and 702.187) and potential enforcement action.

If you have any questions regarding the groundwater-related aspects of this permit, please contact Paula Stine at 217/524-3861. Please contact Kevin Lesko at 217/524-3271 regarding the other aspects of this permit.

Sincerely,

Stephen F. Nightingale, P.E.  
Manager, Permit Section, Bureau of Land

SFN:KL:0978020001-RCRA-M23RM3-Approval.docx

KL 05 JAN 2011

4302 N. Main St., Rockford, IL 61103 (815) 987-7760  
595 S. State, Elgin, IL 60123 (847) 608-3131  
2125 S. First St., Champaign, IL 61820 (217) 278-5800  
2009 Mall St., Collinsville, IL 62234 (618) 346-5120

9511 Harrison St., Des Plaines, IL 60016 (847) 294-4000  
5407 N. University St., Arbor 113, Peoria, IL 61614 (309) 693-5462  
2309 W. Main St., Suite 116, Marion, IL 62959 (618) 993-7200  
100 W. Randolph, Suite 10-300, Chicago, IL 60601 (312) 814-6026

HAZARDOUS WASTE MANAGEMENT  
RCRA POST-CLOSURE PERMIT

Log No. B-23R-M-3

Zion Site 1 Landfill

LPC No. 0978020001

USEPA ID No. ILD980700728

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Attachments: A – Site Layout Map (1 page)  
B – Groundwater Monitoring Attachments (6 pages)

## SECTION I: GENERAL FACILITY DESCRIPTION

On October 30, 1976, Illinois issued Browning-Ferris Industries (BFI) to operate a 59-acre solid waste disposal site at the location now known as Zion Site 1 Landfill (Permit No. 1976-53-OP); this facility is located at 701 Green Bay Road, Zion, Illinois. BFI disposed of waste in an approximately 40-acre portion of the overall permitted facility under the terms and conditions of this permit until November 1980, at which time the regulations governing the management of hazardous wastes came into effect. After November 1980 and until April 1988, BFI operated this landfill in accordance with this state permit and associated supplemental permits) and the hazardous waste interim status regulations. On April 5, 1988 Illinois EPA issued this facility a RCRA permit which set forth detailed requirements for the management of hazardous wastes at this facility.

During the time that BFI operated the approximately 40-acre landfill, mainly non-hazardous waste was disposed in it, but some hazardous waste was also disposed there. BFI ceased disposing of hazardous waste in this unit in 1990; it did however continue to dispose of non-hazardous waste there until 1993. Closure activities of this landfill were completed in 1997 and on February 10, 1998, BFI certified completion of closure of this unit. This landfill is typically referred to as Phase A of the Zion Site 1 Landfill.

Ten acres of the initially permitted site were re-permitted by Illinois EPA for the disposal of only non-hazardous waste on June 24, 1994 (Permit No. 1992-328-LFM). The actual portions of this 10 acre parcel used for landfilling purposes were Cell 1 which consists of 4.9 acres and Cell 2 which consists of 4.7 acres. Non-hazardous waste was disposed in these units from 1994 until 1996. Closure activities for both cells were completed in 1998 and Illinois EPA approved the certification of closure of these units on August 28, 1998. The post-closure care period of these units, to be carried out in accordance with the facility's permit, began on April 25, 1998. Closed Cells 1 and 2 are typically referred to as Phase B of Zion Site 1 Landfill.

The remaining ten acres of the originally permit facility house ancillary equipment and structures associated with the Phase A and B landfills. Leachate and landfill gas management systems have been installed in the Phase A and Phase B and the following equipment/structures associated with these systems are present in this area:

1. The tanks and associated loading areas used to accumulate the collected leachate before it is sent off-site for treatment;
2. The blowers, flare and gas to energy station associated with the gas management system at the facility.

In addition to the units mentioned above, BFI permitted a 74.38 acre solid waste disposal site on the land just east of Phase I mentioned above. Illinois EPA issued the operating permit for this site on December 31, 1981 (Permit No. 1980-24-OP); this permit only allowed for the disposal of non-hazardous waste at this site. On March 21, 1997, Illinois EPA issued a permit (1995-343-LFM) which allowed for an expansion of this landfill to the east and also allowed for a vertical expansion over a portion of the initially permitted disposal area. This second disposal site, now with approximately 130 acres to be used for landfilling purposes, was once referred to as BFI #2, but is now referred to as Veolia ES Zion Landfill.

Browning-Ferris Industries was purchased by Allied Waste Systems in May 1999, and thus became a part of Allied Waste Systems. In May 2000, the three landfills discussed above (Zion Site 1 Landfill, Phase A; Zion Site 1 Landfill, Phase B; and BFI #2) were sold to Onyx. As part of this transaction, BFI retained the post-closure care responsibilities for the Phase A and Phase B landfills associated with Zion Site 1 Landfill while Onyx took over operation of the BFI #2 landfill.

Since 2000, Onyx has become a part of Veolia and Allied Waste Systems has become a part of Republic Services. BFI Waste Systems of North America, LLC, a part of Republic Services, is the operator of the Zion Site 1 Phase A Landfill covered by this permit and is responsible for providing post-closure care of this landfill. Veolia is the owner of the Phase A and Phase B; landfills also continues to operate the former BFI #2 landfill which is now known as the Veolia ES Zion Landfill. In total, Veolia owns approximately 290 acres where waste is being or has been disposed in a landfill. A map showing the layout of the three landfill areas within the parcel is provided in Attachment A to this permit.

## SECTION II: APPROVED PERMIT APPLICATION

The following documents comprise the approved Permit Renewal Application for the renewed RCRA Permit being issued to the Zion Site 1 Landfill facility in Zion, Illinois (the Illinois EPA log number for this renewed permit is B-23R; the Illinois EPA identification number for this facility is 0978020001; the USEPA Identification number for this facility ILD980700728):

1. A document entitled, "Post-Closure Permit Application, Zion Landfill Site 1, Phase A," dated December 2009 and prepared by Weaver Boos Consultants. This document was submitted January 8, 2010 by Michael B. Maxwell, LPG and Elizabeth A. Steinhour, Weaver Boos Consultants; it was received by Illinois EPA on January 11, 2010.
2. Information submitted January 12, 2010 by Michael B. Maxwell, LPG and Elizabeth A. Steinhour, Weaver Boos Consultants. This submittal contained additional information regarding Appendix A-5 of the application identified in Item 1 above and was received by Illinois EPA on January 14, 2010.
3. Information submitted July 15, 2010 by Michael B. Maxwell, LPG and Elizabeth A. Steinhour, Weaver Boos Consultants; it was received by Illinois EPA on July 19, 2010. This submittal included:
  - a. A complete revised version of the text of the application identified in Item 1 above (Sections A thru I). These pages have the phrase "Revised July 2010" in their header.
  - b. A revised Figure E-1 of the document identified in Item 1 above;
  - c. A revised Table E-2 of the document identified in Item 1 above;
  - d. Boring Logs and Well Construction Forms (for wells to be abandoned), this information was incorporated into the end of Appendix E-2 of the document identified in Item 1 above.
4. A document entitled, "Leachate & Gas Control System Documentation, Zion Landfill Site 1, Phase A," dated February 2011 and prepared by Weaver Boos Consultants. This document was submitted February 22, 2011 by Michael B. Maxwell, LPG and Elizabeth A. Steinhour, Weaver Boos Consultants; it was received by Illinois EPA on February 23, 2011.

5. Information submitted via e-mail on April 7, 2011 by Michael B. Maxwell, LPG, Weaver Boos Consultants. This submittal included a table entitled "Gas/Leachate Extraction Well Information"; this table was inserted into the front of Appendix D5 of the document identified in Item 4 above.
6. Information submitted April 8, 2011 by Michael B. Maxwell, LPG, Weaver Boos Consultants; it was received by Illinois EPA on April 22, 2011. This submittal included a revised Appendix E5 (Wind Rose) to be inserted into the document identified in Item 1 above.
7. Information submitted April 21, 2011 Elizabeth A Steinhour and John Bossert, P.E., Weaver Boos Consultants; it was received by Illinois EPA on April 22, 2011. This submittal included:
  - a. General additional information;
  - b. A complete revised version of the text of the document identified in Item 4 above (Pages 1 thru 26). The date 4 8 11 is printed on the lower right-hand corner of each revised page.
  - c. Revised Sheets 1 thru 4 of the document identified in Item 4 above;
  - d. A new Sheet 5 for the document identified in Item 4 above
  - e. A drawing entitled "Site 1-Phase A, Forcemain Profile and Details," Drawing 2 of 2, prepared by Weaver Boos Consultants and dated February 5, 2003.
  - f. Copies of annual reports submitted for the facility for the years 2003 thru 2010.
8. Permit modification, Log # B-23R-M-1, dated January 20, 2012 and received on January 23, 2012. This document was submitted by Joseph Miller, P.G. of Environmental Information Logistics, LLC (EIL) on behalf of BFI Waste Systems of North America, LLC (BFI), operator, and Veolia ES Zion Landfill, Inc. (Veolia), owner. This document proposed background values for the detection and shallow zone observation monitoring program wells. The parameters are identified in List G1 – Semi-Annual Groundwater Sampling in Section IV, Condition E(1) and Section IV-A, Condition D(1)) of the permit.

9. Permit modification, Log # B-23R-M-3, dated November 15, 2013 and received on November 18, 2013. This document was submitted by Joseph Miller, P.G. of Environmental Information Logistics, LLC (EIL) on behalf of BFI Waste Systems of North America, LLC (BFI), operator, and Advanced Disposal Services Zion Landfill, Inc. as the owner. This modification approved proposes background values which are contained in List G2 –Annual Groundwater Sampling, found in Section IV, Condition E(1) and Section IV-A, Condition D(1) of the permit.

In addition, a typo in the notation at the end of List G1- Semi-Annual Groundwater Sampling (Section IV, Condition E(1)) referenced well G123 rather than the correct well designation of R126. This notation now reads “\*\* BGQs Specific Conductance in Well R126 (2495 micromhos/cm).”

### SECTION III: POST-CLOSURE

#### A. SUMMARY

Phase A of the Zion Site 1 Landfill, the hazardous waste management unit which is the subject of this permit, is 40 acres in size. It received mainly non-hazardous waste, but also some hazardous waste from 1976 to 1990; from 1990 and 1993 it only received non-hazardous waste. Waste ceased being disposed in this landfill in 1993. Closure activities for the landfill were completed in 1997 and it was formally certified closed on February 10, 1998. The Permittee has been providing post-closure care of the Phase A Landfill since that time.

The Permittee must continue to provide post-closure care for the Phase A landfill until at least February 9, 2028. This section contains the requirements which the Permittee must carry out while they continue to provide post-closure care of the Phase A landfill. The required post-closure care activities include:

1. Inspecting and maintaining the final cover, berms and drainage structures associated with the closed Phase A landfill;
2. Operating and maintaining the leachate and gas management systems installed in the closed Phase A landfill.
3. Complying with the terms and conditions of Section IV and IV-A (Groundwater) of this permit.
4. Providing financial assurance for the post-closure activities described herein, including any associated operation and maintenance costs, as required by 35 Ill. Adm. Code 724, Subpart H.

#### B. UNIT IDENTIFICATION

Illinois EPA initially issued a permit to dispose of waste in the Phase A landfill on October 30, 1976 (Permit No. 1975-53-OP). The Phase A landfill is trapezoidal in nature; it is approximately 2450' long from north to south; its northern boundary is approximately 630' wide while its southern boundary is approximately 740' wide. In total, the Phase A landfill covers approximately 40 acres.

While both hazardous and non-hazardous were disposed in the Phase A landfill after it began operation in 1976, the vast majority of the waste disposed in the landfill is non-hazardous waste. Hazardous waste ceased to be disposed of this landfill in 1990 and in 1993 the landfill ceased receiving non-hazardous waste. From 1982 to 1990 (the time period when accurate data was maintained), approximately 232,000 tons of hazardous waste were disposed in this landfill.

A minimum of ten feet of in-situ or recompacted clay was to be present along the sidewalls and beneath the bottom of the landfill. The bottom of the landfill slopes north to south from an elevation approximately 750' MSL to an elevation of approximately 730' MSL. In general, the bottom of the landfill is between 10' and 20' below the initial grade of the area where the landfill is located.

A bentonite-soil slurry wall was constructed around the southern portions of the Phase A landfill in the late 1980s and keyed into low permeable soils located beneath the subsurface. This slurry wall is present, in part, along the southern boundary of the landfill and extends approximately 330' from the southeast corner of the landfill north along the landfill's eastern property boundary (the average depth of this portion of the slurry wall is 25'). The other portion of the slurry wall extends approximately 1400' north of the southwest corner of the landfill along the landfill's western boundary (the average depth of this portion of the slurry wall is 35').

A separate permitted solid waste landfill is located directly east of the Phase A landfill (this second landfill is the Veolia ES landfill). A minimum of ten feet of clay soil separates this second landfill from the Phase A landfill, both below grade and above grade. The final grades of these two landfills coincide along their intersection.

Closure activities for the Phase A landfill were completed in 1997 and on February 10, 1998, BFI formally certified completion of closure of the landfill. The final cover placed over the landfill includes from bottom to top:

1. A minimum of two feet of compacted clay;
2. A 40 mil LLDPE (linear low density polyethylene) geomembrane over the top of the landfill where the elevation ranges from approximately 790 ft. MSL to 810 ft. MSL (this area is approximately 450' (east/west) by 1770' (north/south) in size—approximately 18.3 acres; it begins approximately 100' south of the northern boundary of the landfill and is adjacent to eastern boundary of the Phase A landfill);

3. A geocomposite drainage layer. On the top of the landfill, this layer consisted of a polypropylene drainage grid and a non-woven geotextile (the drainage grid was placed on top of the geomembrane). On the sideslopes of the landfill, this layer consisted of a polypropylene drainage grid sandwiched between two non-woven geotextiles;
4. A minimum of three feet of protective soil layer (the upper six inches of this layer is topsoil);
5. A vegetative layer.

A leachate management system and a landfill gas management system have been installed in the closed landfill. Both of these systems use the same 29 wells to extract either leachate or landfill gas. The collected leachate flows to an 8,000 gal above-ground tank where it is accumulated until it is shipped off by truck for treatment. The collected landfill gas typically flows to an on-site gas to energy facility which burns the gas to create electricity; if this station cannot accept the landfill gas for some reason, the gas is burned in an on-site flare.

#### C. GENERAL POST-CLOSURE CARE REQUIREMENTS

1. The post-closure care period for the closed Phase A landfill began February 10, 1998. Post-closure care of this landfill must continue until at least February 9, 2028.
2. Any time during the post-closure care period for these units, the Illinois Pollution Control Board may, in accordance with the permit modification procedures of 35 Ill. Adm. Code 702, 703, and 705, do either of the following:
  - a. Shorten the post-closure care period applicable to the Phase A Landfill if the Board has found by an adjusted standard issued pursuant to Section 28.1 of the Illinois Environmental Protection Act (Act) and 35 Ill. Adm. Code 101 and 104 that the reduced period is sufficient to protect human health and the environment (e.g., leachate or groundwater monitoring results, characteristics of the waste, application of advanced technology or alternative disposal, treatment, or re-use techniques indicate that the hazardous waste management unit or facility is secure); or
  - b. Extend the post-closure care period applicable to the Phase A Landfill if the Board has found by an adjusted standard issue pursuant to Section 28.1

of the Act and 35 Ill. Adm. Code 101 and 104 that the extended period is necessary to protect human health and the environment (e.g., leachate or groundwater monitoring results indicate a potential for migration of hazardous wastes at levels that may be harmful to human health and the environment).

3. The Agency may restrict the future use of the Phase A landfill if it is necessary to protect human health and the environment. This includes permanent prohibition of the use of the site for purposes which create an unreasonable risk to human health or the environment. The Agency shall file such restrictions of record in the Office of the Lake County Recorder.
4. Post-closure use of the Phase A landfill must never be allowed to disturb the integrity of the final cover, berms or any other components associated with the closed landfill or the function of the facility's monitoring system, unless the Agency determines, by way of a permit modification, that the disturbance:
  - a. Is necessary for the proposed use of the property and will not increase the potential hazard to human health or the environment, or
  - b. Is necessary to reduce a threat to human health or the environment.
5. The Permittee must submit a request for permit modification to change any aspect of the approved post-closure care plan, as modified by the conditions of this permit. This request must be in accordance with the applicable requirements of 35 Ill. Adm. Code 702, 703, 705 and 724 and must include a copy of the amended post-closure plan. The request must be submitted at least 180 days prior to the date that the change is needed. Post-closure care of the landfill must be in accordance with the conditions of this permit until such time as the proposed modification is properly incorporated into the facility's RCRA permit.
6. The Permittee shall inspect the final cover, berms and drainage structures of the closed Phase A landfill on a quarterly basis in accordance with the provisions of Section I of the permit application as modified by this permit. The results of each inspection must be documented in the facility's operating record.
7. The Permittee shall maintain the integrity and effectiveness of the final cover, berms and drainage structures of the Phase A landfill. This includes making repairs as necessary to correct the effects of settling, subsidence, erosion, etc.

Corrective action shall be taken if any problem listed below is encountered when inspecting the final cover, berms and drainage structures of the landfill:

- a. Cracks greater than one inch wide in the final cover or berms, rills, gullies and crevices greater than six inches deep.
- b. Depressions (ponds) and holes in the final cover;
- c. Eroded or scoured drainage channels;
- d. Little or no vegetation is present in an area in excess of 100 square feet in size;
- e. Gas and/or odor problems;
- f. Growth of vegetation with taproots;
- g. Vectors;
- h. Leachate popouts or seeps.

Appropriate follow-up inspections must be conducted to verify the corrective action taken adequately addresses the observed problem. In addition, the corrective action taken and results of all follow-up inspections must be documented in the facility's operating record.

8. The Permittee shall protect and maintain the surveyed benchmarks present at or near the closed Phase A landfill.
9. The Permittee shall place additional warning signs (DANGER - UNAUTHORIZED PERSONNEL KEEP OUT) around the closed Phase A landfill as necessary such that one is clearly legible at any point near the perimeter of the landfill.

D. OPERATION OF THE LEACHATE AND GAS MANAGEMENT SYSTEMS

1. Two of the most important aspects of post-closure care of a landfill which received mainly non-hazardous waste are the proper management of leachate and landfill gas generated within the closed landfill. Failure to properly manage this

leachate and landfill gas may allow contaminants to migrate away from the landfill and impact the surrounding area.

2. A landfill gas extraction/management system was installed within the closed Phase A landfill in 1997. This system currently consists of a blower, 29 vertical extraction located throughout the landfill, piping required to carry the extracted gas to a treatment unit and equipment to treat/burn the extracted landfill gas.
3. In 1998, modifications were made to the gas extraction wells mentioned above so that they could also be used to remove leachate from the landfill (i.e., submersible pumps and associated piping were placed in each of the wells). Additional piping, etc. was installed during this effort so that the extracted leachate could be routed to an above-ground tank where it is accumulated before being sent off-site for treatment.
4. Several minor modification has been made to the leachate and landfill gas management since they were first installed. Drawings showing the current layout of these systems is provided in the document entitled "Leachate and Gas Control Documentation" which is a part of the approved permit application.
5. One of the keys aspects of the leachate and landfill gas management systems for the Phase A landfill is the interval over which each extraction well is screened. A tabular summary of this information is as follows (\* = no leachate extraction pump present in well; well is only for removal of landfill gas):

Extraction Well No.	Surface Elevation (ft. MSL)	Approximate Screened Interval (ft. MSL)
EW-1	789.3	750.4-774.3
EW-2	802.5	748.4-781.2
EW-3	807.3	747.6-780.3
EW-4*	789.0	750.9-773.7
EW-5*	788.2	750.3-773.2
EW-6*	797.3	749.3-781.2
EW-7*	799.1	747.5-780.5
EW-8	798.0	747.8-784.8

<b>Extraction Well No.</b>	<b>Surface Elevation (ft. MSL)</b>	<b>Approximate Screened Interval (ft. MSL)</b>
EW-9	795.2	746.8-780.8
EW-10	812.4	747.2-788.2
EW-11	799.0	746.3-780.5
EW-12	797.1	746.5-783.6
EW-12A	787.1	751.2-776.5
EW-13	811.4	744.7-788.7
EW-14	795.0	744.8-780.0
EW-15	791.7	743.1-777.1
EW-16	809.0	745.0-787.5
EW-17	782.5	742.7-767.2
EW-18	801.2	741.8-779.8
EW-19	776.7	740.6-760.4
EW-20	771.6	739.9-753.9
EW-21	763.5	740.0-749.3
EW-22	767.8	739.3-750.4
EW-23*	766.4	740.5-750.5
EW-24	777.7	740.0-762.0
EW-25	785.9	741.2-770.0
EW-26	783.2	739.4-768.2
EW-27	804.6	741.8-783.8
EW-28	809.7	744.5-789.0

6. The leachate and gas management systems at the Phase A landfill must be operated, monitored, maintained and inspected in accordance with the provisions of this permit and the document entitled "Leachate and Gas Collection Control

Documentation.” Additional requirements associated with these systems are set forth in Subsection E, F and G below.

E. LANDFILL GAS MONITORING

The Landfill Gas Monitoring Program to be implemented for the closed Phase A landfill is set forth in Appendix E of “Leachate and Gas Collection Control Documentation” and is hereby approved subject to the following conditions and modifications:

1. Within ninety days of the effective date of this permit, one additional gas monitoring probe outside the waste boundary must be installed between Monitoring Probe GP-2 and GP-3. This will make a total of six monitoring probes outside the waste boundaries of the Phase A landfill. Construction details associated with the installation of this additional probe shall be submitted to Illinois EPA after the probe has been installed.
2. The six perimeter gas monitoring probes and four ambient air locations (three down-wind and one up-wind) must be sampled on a quarterly basis and the samples analyzed for the following parameters:
  - a. Pressure (determined before collecting any samples)
  - b. Methane
  - c. Oxygen
  - d. Carbon Dioxide
3. All ambient air samples must be collected: (1) no more than one inch above the ground surface; and (2) within 100' of the leachate (or at the property boundary if it is closer).
4. During the quarterly monitoring required above, the presence of any malodors near the sample points and beyond the property boundary must be noted in the field notes for the sampling effort. At a minimum, these notes must document that the presence of malodors was evaluated at each sampling location.
5. The steps described in Condition III.E.6 below must be carried out if any of the following occur during the required quarterly landfill gas monitoring program:

- a. A methane concentration greater than 50% of the lower explosive limit in air is detected in any of the below ground monitoring devices outside the waste boundary;
  - b. A methane concentration greater than 50% of the lower explosive limit in air is detected during ambient air monitoring;
  - c. A methane concentration greater than 25% of the lower explosive limit in air is detected in any building on or near the facility;
  - d. Malodors attributed to the unit are detected beyond the property boundary
6. If any of the items identified in Condition III.E.5 occur, the Permittee shall:
- a. Take immediate action, as appropriate, to protect human health from the adverse conditions
  - b. Within two business days of the occurrence, notify the Illinois EPA in writing of the occurrence, including its location and a description of its nature (quantitatively if possible).
  - c. Monitor the gas probes and ambient air on a daily basis for the parameters set forth in Condition III.E.2; appropriate action will have been taken when the results of the monitoring program are below all the criteria identified in Condition III.E.5 for five consecutive days.
  - d. Submit weekly reports documenting the action taken to correct the problem and summarizing all monitoring efforts carried out during the response period.
  - e. If, after thirty days, problems are still occurring, the Permittee must submit a Class 1\* permit modification request which describes the changes which must be made at the landfill to remedy the problem. Until such time as the modification request is approved, the Permittee must still comply with the requirements of Conditions III.E.6.a through d above.
7. At the end of the post-closure care period, the gas monitoring probes shall be decommissioned. The probes outside the waste boundary shall be decommissioned using Illinois EPA's groundwater monitoring well plugging procedures. In decommissioning probes within the waste boundary, the pipe must

be cut off at least two feet below the compacted clay layer and plugged. The final cover in this area must then be reconstructed, as appropriate.

F. GAS MANAGEMENT SYSTEM

1. Except as modified in this permit, the landfill gas extraction system associated with the closed Phase A landfill must be operated, maintained and inspected in accordance with Appendix H of the document entitled "Leachate & Gas Control System Documentation, Zion Site 1 Landfill."
2. The Permittee must operate the landfill gas collection system installed in the closed Phase A landfill in such a manner that:
  - a. The criteria set forth in III.E.6 above are not exceeded:
  - b. It is capable of removing landfill gas from the entire landfill
3. The landfill gas collected from this facility is typically directed to a gas-to-energy facility where it is burned in internal combustion engines which in turn drive generators to produce electricity. When the gas-to-energy facility cannot receive landfill gas, the gas is directed to a flare where it is burned. The Permittee must maintain a log of all the times that the landfill gas is diverted to the flare.
4. The following measurements shall be made quarterly on the landfill gas flowing into the flare or the gas-to-energy facility: flow rate, heat value, percent oxygen and percent carbon dioxide.
5. At a minimum, all equipment and appurtenances associated with the gas management system must be inspected and maintained, as necessary on a quarterly basis.
6. The Permittee must comply with the terms and conditions of Permit No. 097200AAU issued by Illinois EPA's Bureau of Air in regards to emissions from the landfill and from the flare used on occasion to burn collected landfill gas. It is understood that operation of the on-site landfill gas-to-energy plant is operated by Bio-Energy, Inc. under Permit No. 097200ABC issued by Illinois EPA's Bureau of Air.

7. Condensate from the landfill gas extraction system must be managed as a listed hazardous waste (F039). Currently, this condensate is collected and discharged into the on-site leachate collection tank.

G. LEACHATE MANAGEMENT

1. The leachate pumps in the extraction wells identified in Condition III.D.5 are located approximately one foot above the bottom of the well. These pumps automatically turn on when the leachate level is approximately 3.5' above the bottom of the pump.
2. A manhole/sump is present just outside the southwest corner of the landfill which receives leachate from the original leachate collection trenches installed along the perimeter of the landfills base. The bottom of this sump is at an elevation of approximately 726 MSL. A pump similar to that described above is present in the sump and its intake is located approximately one foot above the bottom of the sump/manhole.
3. The level of leachate in each extraction well and the manhole/sump (relative to mean sea level) must be monitored on a quarterly basis.
4. The amount of leachate removed from each extraction well and the manhole/sump must be determined on a quarterly basis. This determination may be made using the counter devices associated with each extraction pump in conjunction with knowledge of the total amount of leachate removed during the quarter.
5. A record of the date each load of leachate is sent off-site for treatment must be maintained, as well as the volume shipped. In maintaining this record, adjustments must be made for the amount of gas condensate generated and transferred to the leachate accumulation tank.
6. Prior to shipping a load of leachate off-site for treatment, a sample must be collected and analyzed for:
  - a. Five day biological oxygen demand (BOD<sub>5</sub>);
  - b. Chemical Oxygen demand;
  - c. Total solids;

- d. Total suspended solids;
- e. Dissolved solids;
- f. Total iron;
- g. pH;
- h. The groundwater monitoring constituents set forth in Lists G1 and G2 of Condition IV.E.1 of this permit;
- i. Any other parameters deemed necessary by the facility receiving the leachate for treatment.

The results of this sampling/analysis effort must be documented in the facility's operating record.

- 7. A sample of leachate must be collected from an extraction well within the landfill annually and analyzed for the constituents set forth in 35 Ill. Admin. Code 811, Appendix C.
  - a. The following four extraction wells shall constitute the locations where these samples are to be collected: EW-2; EW-6; EW-20; EW-24
  - b. A sample must be collected from EW-2 within one year of the effective date of this permit;
  - c. A sample must be collected from EW-20 within two years of the effective date of this permit;
  - d. A sample must be collected from EW-6 within three years of the effective date of this permit;
  - e. A sample must be collected from EW-24 within four years of the effective date of this permit;
  - f. The order in which a leachate sample is collected/analyzed after the permit has been in effect for four years shall follow that set forth in Conditions III.G.7.b through e above.

The results of this sampling/analysis effort must be document in the facility's operating record.

8. The Permittee shall continue to operate the leachate collection and removal system throughout the post-closure care period until pumpable quantities of leachate are no longer present.

#### H. RECORDKEEPING AND REPORTING

1. A detailed record of all activities, observations, and corrective action associated with providing post-closure of the closed Phase A landfill must be created and maintained at this facility.
2. By March 1 of each year, the Permittee shall submit a report to Illinois EPA which summarizes the post-closure care activities completed during the previous calendar year. This report should contain:
  1. Background information about the facility and a general discussion of the post-closure care activities carried out during the year;
  2. Dates quarterly inspections were conducted and copies of completed inspection checklists (these inspection include those required by Conditions III.C.6 above);
  3. A general discussion of the observations from the quarterly inspections mentioned above. Problems observed during the quarterly inspections must also be discussed and documentation must be provided regarding actions taken to correct the problem;
  4. A discussion of all maintenance activities carried out during the year, including mowing the vegetative cover over the landfill.
  5. The results of the landfill gas monitoring required by Condition III.E.2 above and the action taken if any exceedences identified in Condition III.E.5 occur;
  6. Information regarding the landfill gas being sent to the gas-to-energy plant or flare as required by Condition III.F.3 above;

7. Identification of any time periods when either the leachate or gas management systems were not operating or not operating properly; including identification of any time periods when the landfill gas was directed to the flare rather than the gas to energy system.
8. Information regarding the leachate management program being carried out:
  - a. The information required by Condition III.G.5 above as it relates to the amount of leachate sent off-site throughout the year;
  - b. The amount of leachate removed from each leachate extraction well during the year as required by Condition III.G.4 above;
  - c. The level of leachate observed each quarter in each leachate extraction well as required by Condition III.G.3 above
  - d. The results of the analyses conducted on leachate as required by Conditions IV.G.6 and 7 above.
9. An evaluation of the data collected for the leachate and gas management programs at the facility to determine if they are operating effectively.
10. Recommended changes which should be made to the leachate or gas management units to increase their effectiveness in removing leachate or landfill gas from the landfill.

This information will form the foundation to support the certification of completion of post-closure care eventually submitted to Illinois EPA in accordance with 35 Ill. Admin. Code 724.220 and Condition III.K.3 of this permit.

#### I. FINANCIAL ASSURANCE FOR POST-CLOSURE CARE

1. The estimated annual cost of providing post-closure of the Phase A Landfill is \$194,354.60 (in 2009 dollars); this includes a contingency factor for unexpected expenses of 15%. As the post-closure care period for this unit began on February 10, 1998, seventeen years of post-closure care must still be provided. Thus, the total post-closure care estimate for the closed Phase A landfill is \$3,304,028 (in 2009 dollars).

2. Financial assurance meeting the requirements of 35 Ill. Adm. Code 724, Subpart H must be maintained for post-closure care of the closed Phase A landfill.

J. CONTACT INFORMATION/REQUIREMENTS

1. This permit sets forth requirements which the Permittee must carry out at the facility whose address is:  
  
Zion Landfill Site 1  
701 North Green Bay Road  
Zion, Illinois 60098
2. The contact person for the operator, BFI Waste Systems of North America, LLC is:  
  
James W. Hitzeroth  
26 W. Schick Road  
Hanover Park, Illinois 60103  
Telephone No.: 630/894-5001  
e-mail address: [JHitzeroth@republicservices.com](mailto:JHitzeroth@republicservices.com)
3. The contact person for the owner, Veolia ES Zion Landfill, Inc. is:  
  
James Lewis  
Veolia ES Landfill, Inc.  
701 North Green Bay Road  
Zion, Illinois 60099  
Telephone No.: 847/731-5110
4. A copy of this permit and associated approved permit application must be maintained: (1) at this facility; and (2) by Mr. Hitzeroth.
5. Requests to change the contact persons identified above shall be submitted as Class 1 permit modification requests.

K. NOTICES AND CERTIFICATION

1. Within sixty days of the effective date of this permit, the Permittee shall:
  - a. Submit to the local zoning authority or the authority with jurisdiction over local land use, and to the Agency a survey plat and a record of the type, location, and quantity of wastes disposed of within each cell or other disposal unit of the facility. For hazardous wastes disposed before January 12, 1981, the Permittee shall identify the type, location, and quantity of the wastes to the best of his knowledge and in accordance with any records he has kept. This plat must be prepared and certified by an independent registered land surveyor.
  - b. Record, in accordance with Illinois law, a notation on the deed to the facility property – or on some other instrument that is normally examined during title search – that will in perpetuity notify any potential purchaser of the property that:
    - (i) The land has been used to manage hazardous wastes;
    - (ii) Its use is restricted under 35 IAC 724.217(c);
    - (iii) The survey plat and record of the type, location, and quantity of hazardous wastes disposed within each cell or other hazardous waste disposal unit of the facility have been filed with the Agency, the County Recorder, and any local zoning authority.
  - c. Submit a certification to the Agency's Division of Land Pollution Control, signed by the Permittee, that the documents have been appropriately distributed/recorded including copies of the documents distributed/recorded.
2. If the Permittee or any subsequent owner or operator of the land upon which a hazardous waste disposal unit is located wishes to remove hazardous wastes and hazardous waste residues, the liner, if any, or contaminated soils, he must request first a modification to this post closure permit in accordance with the applicable requirements in 35 Ill. Adm. Code Parts 703, 705 and 724. This request must be submitted to Illinois EPA at least 180 days prior to the date that wish to remove the materials. The owner or operator must, at a minimum, demonstrate that the

removal of hazardous wastes will satisfy the criteria of 35 Ill. Adm. Code 724.217(c).

3. No later than sixty (60) days after completion of the established post closure care period for the closed Phase A landfill, the Permittee shall submit to the Agency, by registered mail, a certification that the post-closure care for the closed Phase A landfill was performed in accordance with the specifications in the approved post-closure plan.
  - a. The certification must be signed by the owner or operator and a qualified registered professional engineer.
  - b. Documentation regarding the efforts carried out during the post-closure care period must accompany this certification.

#### SECTION IV: GROUNDWATER DETECTION MONITORING PROGRAM

##### A. SUMMARY

Groundwater parameters monitored in the uppermost aquifer below the facility indicate that, at the present time, no groundwater impacts have occurred. Therefore, a Groundwater Detection Monitoring Program meeting the requirements of 35 Ill. Adm. Code 724.198 shall be implemented at the facility. Phase A of the Zion Site 1 Landfill has eleven (11) existing monitoring wells which monitor the interglacial sand unit at a depth of approximately 100 feet below ground surface.

##### B. DEFINITION

As used herein, the words or phrases set forth below shall have the following definitions:

1. "Site" or "Facility" refers to the location at 701 Green Bay Road, Zion, County of Lake State of Illinois.
2. "Permittee" refers to the Facility.
3. "Illinois EPA" refers to the Illinois Environmental Protection Agency.
4. "RCRA" shall mean the Resource Conservation and Recovery Act as defined by Section 3.425 of the Environmental Protection Act, 415 ILCS 5/1 (2006).
5. "Permit" refers to the renewed RCRA Permit.
6. "Point of Compliance" refers to the vertical surface located at the hydraulically downgradient limits of the waste management area extending down into the uppermost aquifer underlying the regulated unit.
7. "Ft-bgs" refers to the number of feet below the ground surface.
8. "Ft-MSL" refers to the number of feet below the ground surface referenced to mean sea level.
9. "Detected" shall mean a concentration equal to or above the PQL listed in the latest version of USEPA's "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846) for the applicable analytical methods

specified in the approved Sampling and Analysis Procedures, which are incorporated by reference in Condition IV.H of the permit.

10. "Uppermost Aquifer" refers to the geologic formation nearest the natural ground surface that is an aquifer, as well as lower aquifers that are hydraulically connected with this aquifer in the vicinity of the facility. The uppermost aquifer in the vicinity of the Phase A of the Zion Site 1 landfill has been identified as the interglacial sand deposits.
11. "Stick-up" refers to the height of the referenced survey datum. This point is determined within  $\pm 0.01$  foot in relation to mean sea level, which in turn is established by referenced to an established National Geodetic Vertical Datum.

C. IMPLEMENTATION

1. The Permittee shall implement the Groundwater Detection Monitoring Program upon the effective date of this permit. On that date, the groundwater monitoring requirements set forth in this permit shall supersede those previously established.
2. The Permittee shall carry out the detection monitoring specified in this permit on the groundwater beneath Phase A of the Zion Site 1 Landfill facility in Zion, Illinois. The uppermost aquifer in the vicinity of the facility has been identified as interglacial sand deposits. For the purpose of this permit and in accordance with the 35 Ill. Adm. Code Part 620 regulations, the uppermost aquifer has been designated Class I: Potable Resource Groundwater.
3. The Point of Compliance, defined as the vertical surface located at the hydraulically downgradient limit of the waste management area that extends down into the uppermost aquifer underlying the regulated unit, is delineated by the wells identified as the point of compliance wells in Condition IV.D.1 and illustrated in Figure E-1 of the approved Permit Renewal Application.

D. WELL LOCATION AND CONSTRUCTION

1. The Permittee shall install and maintain groundwater monitoring wells identified in the table below to allow for the collection of groundwater samples and elevations from the shallow zone and uppermost aquifer. The location of these wells are specified in Figure E-1 of the approved Permit Renewal Application:

<u>Well No.</u>	<u>Well Depth from top of Inner Casing (ft)</u>	<u>Well Bottom Elevation (ft-MSL)</u>	<u>Well Screen Interval (ft-MSL)</u>
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Background Wells

G121	102.0	627.0	632.0-627.0
R123	122.6	640.4	645.6-640.4
R136	113.8	634.2	644.5-634.7
R127	112.2	650.9	656.1-651.4

Point of Compliance Wells

R124	153.4	634.8	644.8-634.8
R126	159.4	648.4	658.4-648.4
R128	155.2	647.7	652.7-647.7
C129	168.1	644.4	649.6-644.9
G131	161.3	649.8	654.8-649.8
G132	167.9	637.3	647.3-637.3
R133	119.7	639.0	649.0-639.0

2. Construction of each new monitoring well/piezometer must be in accordance with the diagram contained in Attachment B to this permit unless otherwise approved in writing by the Illinois EPA. Any new monitor wells/piezometers to be installed must be continuously sampled and logged on Illinois EPA boring logs which can be found at <http://www.epa.state.il.us/land/regulatory/programs/permits-and-management/form/index.html#groundwater-permits>.
3. The Permittee shall notify the Illinois EPA within thirty (30) days in writing if any of the wells identified in Condition IV.D.1 are damaged or the structural integrity has been compromised. A proposal for the replacement of the subject well shall accompany this notification. The well shall not be plugged until the new well is on-line and monitoring data has been obtained and verified, unless the well is extremely damaged and would create a potential route for groundwater contamination. Prior to replacing the subject well, the Permittee shall obtain written approval from the Illinois EPA regarding the proposed installation procedures and construction.
4. Should any well become consistently dry or unserviceable, a replacement well shall be provided within ten (10) feet of the existing well. This well shall monitor the same zone as the existing well and be constructed in accordance with the

current Illinois EPA groundwater monitoring well construction standards at the time the wells are replaced. A replacement well which is more than ten (10) feet from the existing well or does not monitor the same geologic zone must be approved by the Illinois EPA and designated as a new well.

5. The Permittee shall submit boring logs, construction diagrams and data sheets from installation and development of a new or replacement well to the Illinois EPA at the address below within thirty (30) days of the date that installation of the well is completed. In addition, the Permittee shall submit certification that plugging and abandonment of a well was carried out in accordance with the approved procedures to the Illinois EPA at the address below within thirty (30) days of the date that the well is plugged and abandoned. All information should be submitted to the appropriate State Agencies.

Illinois Environmental Protection Agency  
Bureau of Land - #33  
Permit Section  
1021 North Grand Avenue East  
Post Office Box 19276  
Springfield, Illinois 62794-9276

6. All wells/piezometers shall be equipped with protective caps and locks. Monitoring wells or piezometers located in high traffic areas must be protected with bumper guards or other alternate barriers.
7. All wells/piezometers not utilized in the approved groundwater monitoring system, but retained by the facility, must be constructed and maintained in accordance with 77 Ill. Adm. Code 920 regulations. Monitoring wells that are improperly constructed must be abandoned in accordance with Condition IV.D.3.

E. MONITORING PARAMETERS

1. The Permittee shall determine groundwater quality at each groundwater monitoring well identified in Condition IV.D.1, at both background and point of compliance locations, semi-annually during the active life (including closure and post-closure care period) of the landfill. Samples collected during the semi-annual and annual sampling events of each year shall be analyzed for the constituents below:

List G1 – Semi-Annual Groundwater Sampling

<u>Field Parameters</u>	<u>Storet Number</u>	<u>Reporting Units</u>
pH *	00400	
Specific Conductance **	00094	micromhos/cm
Temperature of Water Sample	00011	(°F)
Turbidity	45626	Ntus
Depth to Water (below land surface)	72019	Feet
Depth to Water (below measuring point)	72109	Feet
Elevation of Bottom of Well#	72020	Ft-MSL
Elevation of Groundwater Surface	71993	Ft-MSL
Elevation of Measuring Point (top of casing)##	72110	Ft-MSL

# Shall be determined once every five (5) years during the annual sampling event in accordance with Condition IV.G.3.

## Shall be surveyed once every five (5) years, or at the request of the Illinois EPA, or whenever the elevation changes as required by Condition IV.G.2.

\* Background Groundwater Quality values (BGQs) for pH in well G131 (8.45-10.23) and well G132(8.03-9.64).

\*\* BGQs for specific Conductance in Well R126 (2495 micromhos/cm).

<u>Parameters</u>	<u>Storet Number</u>	<u>BGQs (ug/L)</u>
Acetone	81552	100
Acrolein	34210	25
Acrylonitrile	34215	10
Benzene	34030	5
Bromodichloromethane	32101	5
Bromoform	32104	5
Bromomethane	34413	5
Carbon Tetrachloride	32102	5
Chlorobenzene	34301	5
Chloroethane	34311	10
2-Chloroethyl Vinyl Ether	34576	10
Chloroform	32106	5
Chloromethane	34418	10
1,1-Dichloroethane	34496	5
1,2-Dichloroethane	34531	5

<u>Parameters</u>	<u>Storet Number</u>	<u>BGOs (ug/L)</u>
1,1-Dichloroethene	34501	5
trans-1,2-Dichloroethene	34546	5
1,2-Dichloropropane	31541	5
cis-1,3-Dichloropropene	34704	5
trans-1,3-Dichloropropene	34699	5
1,4-Dioxane	81582	120
Ethyl Benzene	78113	5
Isobutyl Alcohol	77033	100
Methylene Chloride	34423	5
Pyridine	77045	5
1,1,2,2-Tetrachloroethane	34516	5
Toluene	34010	5
1,1,1-Trichloroethane	34506	5
1,1,2-Trichloroethane	34511	5
Trichloroethene	39180	5
Vinyl Chloride	39175	2
1,2-Dichlorobenzene	34536	10
1,3-Dichlorobenzene	34566	10
1,4-Dichlorobenzene	34571	10
Hexachlorobutadiene	39702	10
Hexachloroethane	34396	10
Naphthalene	34696	10
Nitrobenzene	34447	10
1,2,4-Trichlorobenzene	34551	10

List G2 – Annual Groundwater Sampling

<u>Parameters</u>	<u>Storet Number</u>	<u>BGOs (ug/L)</u>
Barium (dissolved)	01005	1000
Barium (total)	01007	1000
Cadmium (dissolved)	01025	2
Cadmium (total)	01027	3
Chromium (dissolved)	01030	10
Chromium (total)	01034	10

<u>Parameters</u>	<u>Storet Number</u>	<u>BQs (ug/L)</u>
Cyanide (dissolved)	00723	0.005
Cyanide (total)	00720	0.005
Lead (dissolved)	01049	5
Lead (total)	01051	5
Mercury (dissolved)	71890	0.2
Mercury (total)	71900	0.2
Nickel (dissolved)	01065	100
Nickel (total)	01067	100

Note: All constituents with "dissolved" labeled to the right shall be determined using groundwater samples which have been filtered through a 0.45 micron filter and used for statistical purposes.

2. Alternate concentration limits may be established in accordance with 35 Ill. Adm. Code 724.194(b) where the Permittee can determine a constituent will not pose a substantial hazard to human health or the environment. The alternate concentration limits proposed by the facility must be approved by the Illinois EPA.
3. The Permittee shall establish background values in accordance with the procedures specified in Section E of the approved Permit Renewal Application as well as the following procedures:
  - a. Background groundwater quality for a monitoring parameter or constituent shall be based on data from four (4) consecutive sampling events of the upgradient groundwater monitoring wells for two (2) years.
  - b. For those monitoring parameters or constituents not detected above the practical quantitation limit (PQL) during background gathering, the PQL shall be the established background value.

F. DETECTION MONITORING PROGRAM

1. The Permittee shall determine groundwater quality at each monitoring well identified in Condition IV.D.1 semi-annually and annually during the active life of the regulated unit (including the closure and post-closure care periods). The

Permittee shall express the groundwater quality at each monitoring well in a form necessary for the determination of statistically significant changes (i.e. means, variances, etc.).

2. The Permittee shall determine the groundwater flow rate and direction in the uppermost aquifer semi-annually, and report to the Illinois EPA at least annually from monitoring wells identified in Condition IV.D.1
3. The Permittee shall determine whether there is a statistically significant increase, (or decrease in the case of pH) over the background values established for each parameter identified in Condition IV.E.1 or the 35 Ill. Adm. Code 620, Class I Groundwater Quality Standards, whichever is greater, each time groundwater quality is determined at the point of compliance. In determining whether such a change has occurred, the Permittee must compare groundwater quality at each monitoring well identified in Condition IV.D.1 to the background value derived in accordance with the statistical procedures specified in Section E of the approved Permit Renewal Application.

#### G. GROUNDWATER ELEVATION

1. The Permittee shall determine the groundwater surface elevation referenced to mean sea level (MSL) at each well each time groundwater is sampled in accordance with Condition IV.J.3.
2. The Permittee shall determine the surveyed elevation of "stick-up" referenced to MSL when the well is installed (with as-built diagrams) and every five (5) years; or at the request of the Illinois EPA; or whenever the elevation changes in accordance with Condition IV.J.5.
3. Elevation, as referenced to MSL, of the bottom of each monitoring well (STORET 72020), is to be reported once every five (5) years, or whenever the pumps are removed from the well for maintenance; or at the request of the Illinois EPA; or whenever the elevation changes in accordance with Condition IV.J.6. The mandatory measurement shall be taken during the annual sampling events.

#### H. SAMPLING AND ANALYTICAL PROCEDURES

1. The Permittee shall use the techniques and procedures described in Section E of the approved Permit Renewal Application except as modified below, when

obtaining and analyzing samples from the groundwater monitoring wells described in Condition IV.D.1:

- a. Samples shall be collected by the techniques described in Section E in the approved Permit Renewal Application.
- b. Samples shall be preserved and shipped (when shipped off-site for analysis) in accordance with the procedures specified in Section E of the approved Permit Renewal Application.
- c. Samples shall be analyzed in accordance with the procedures specified in Section E approved Permit Renewal Application.
- d. Samples shall be tracked and controlled using the chain-of-custody procedures specified in Section E approved Permit Renewal Application.

I. STATISTICAL PROCEDURES

When evaluating the monitoring results in accordance with Condition IV.F, the Permittee shall use the following procedure:

1. The statistical methods to be used shall be as specified in Section E of the approved Permit Renewal Application.
2. Analytical data shall be compared to the parameter background values established in accordance with Section E of the approved Permit Renewal Application.
3. For Constituents which have not been detected in the groundwater, a value of two times the practical quantitation limit (PQL) shall be used as the background concentration.

J. REPORTING AND RECORDKEEPING

1. The Permittee shall enter all monitoring, testing, and analytical data obtained in accordance with Conditions IV.E, IV.F, IV.G, IV.H, and IV.I in the operating record. The data must include all computations, calculated means, variances, t-statistic values, and t-statistic results or results of statistical tests that the Illinois EPA has determined to be equivalent.

2. Samples collected to meet the requirements of the groundwater monitoring program described in Conditions IV.E, IV.F, IV.G and IV.I shall be collected and reported, as identified in the table below. All additional information required by the groundwater monitoring program (as Specified in Conditions IV.E, IV.F, IV.G, IV.I) shall also be submitted to the Illinois EPA at the address listed in Condition IV.D.5 in accordance with this schedule.

<u>Samples to be Collected During The Months of</u>	<u>Results Submitted to the Illinois EPA by the Following</u>	<u>Parameters</u>
April – May	July 15	List G1 and G2
October – November	January 15	List G1

3. Groundwater surface elevation data, measured pursuant to Condition IV.G.1 shall be collected semi-annually and submitted to the Illinois EPA according to the schedule in Condition IV.J.2.
4. The Permittee shall report the groundwater flow rate and direction in the uppermost aquifer as required by Condition IV.F.2 during the annual sampling event of the year.
5. The Permittee shall report the surveyed elevation, as required by Condition IV.G.2, of the top of the well casing “stick-up”, referenced to MSL in accordance with the following schedule:
- For wells identified in Condition IV.D.1, every five (5) years (during the annual sampling event); or at the request of the Illinois EPA; or whenever the elevation changes.
  - For any new wells, at the time of installation and reported in the as-built diagrams, subsequent measurements shall be made every five (5) years (during the annual sampling event), or at the request of the Illinois EPA, or whenever the elevation changes.
6. Elevation of the bottom of each monitoring well identified in Condition IV.D.1, as referenced to MSL, is to be reported every five (5) years. This measurement shall be taken during the annual sampling event (Storet 72020) in accordance with Condition IV.G.3.

7. Information required by Conditions IV.J.2, IV.J.3, IV.J.5 and IV.J.6 must be submitted in an electronic format. The information is to be submitted, as fixed-width text files formatted as found in Attachment B, in accordance with the schedule found in Condition IV.J.2 above. Additional guidance regarding the submittal of the information in an electronic format can be found at <http://www.epa.state.il.us/land/regulatory-programs/electronic-intro.html>.
8. The Permittee shall submit a completed "RCRA Facility Groundwater, Leachate and Gas Reporting Form" (LPC-592) as a cover sheet for any notices or reports required by the permit for identification purposes. Only one copy of the LPC-592 must accompany your submittal. However, the Permittee must submit one (1) original and (excluding the groundwater and leachate monitoring results submitted in an electronic format) a minimum of two (2) copies of each notice or report you submit to the Illinois EPA. The form is not to be used for permit modification requests.
9. The Permittee shall report all information to the Illinois EPA in a form which can be easily reviewed. All submittals contain tables of data drawings and text (as necessary) to accurately describe the information contained in the submittal.
10. If the Permittee determines, pursuant to Condition IV.F.3 of this Section, that there is a statistically significant change for any of the parameters specified in Condition IV.E.1 at any monitoring well at the compliance point, the Permittee shall:
  - a. Notify the Illinois EPA in writing within seven days indicating which parameters and wells have shown statistically significant increases and provide all statistical calculations. This notification shall be submitted to the Illinois EPA within seven (7) days of the date that the increases are discovered.
  - b. Sample the groundwater in all wells listed in Condition IV.D.1 and determine the concentration of all constituents identified in Appendix I of 35 Ill. Adm. Code, Part 724 such that the results will accompany the permit modification required by Condition IV.J.10.d below.
  - c. For any Appendix I compounds found in the analysis pursuant to this condition, the Permittee may resample within one month and repeat the analysis for those compounds detected. If results of the second analysis confirm the initial results, then these constituents will form the basis for compliance monitoring. If the Permittee does not resample for the

compounds pursuant to this condition, the hazardous constituents found during the initial Appendix I analysis will form the basis for compliance monitoring.

- d. Submit to the Illinois EPA an application for a permit modification to establish a compliance monitoring program meeting the requirements of 35 Ill. Adm. Code 724.199. The application shall be submitted to the Illinois EPA within ninety (90) days of the date that the increase is discovered. Furthermore, the application must include the following information:
  - i. An identification of the concentration of any 35 Ill. Adm. Code 724, Appendix I constituents found in the groundwater at each monitoring well at the point of compliance;
  - ii. Any proposed changes to the groundwater monitoring system at the facility necessary to meet the requirements 35 Ill. Adm. Code 724.199;
  - iii. Any proposed changes to the monitoring frequency, sampling and analysis procedures, or methods or statistical procedures used at the facility necessary to meet the requirements of 35 Ill. Adm. Code 724.199; and
  - iv. For each hazardous constituent found at the compliance point, a proposed concentration limit under 35 Ill. Adm. Code 724.194(a)(1) or 724.194(a)(2), or a notice of intent to seek an alternate concentration limit for a hazardous constituent under 35 Ill. Adm. Code 724.194(b).
- e. Submit to the Illinois EPA a corrective action feasibility plan to meet the requirements of 35 Ill. Adm. Code 724.200 unless the concentrations of all hazardous constituents identified under Condition IV.J.10.b above are listed in 35 Ill. Adm. Code 620.410 and their concentrations do not exceed the respective Groundwater Quality Standards or the Permittee has sought an alternate concentration limits under Condition IV.J.10.d.iv above for every hazardous constituent identified under Condition IV.J.10.b above. This plan must be submitted to the Illinois EPA within 180 days of the date the increases is discovered.

- f. Submit to the Illinois EPA all data necessary to justify any alternate concentration limit for a hazardous constituent sought under Condition IV.J.10.d.iv above. This plan must be submitted to the Illinois EPA within 180 days of the date the increases is discovered.
- 11. If the Permittee determines, pursuant to Condition IV.F.3, that there is a statistically significant increase above the background values for the parameters specified in Condition IV.E.1, the Permittee may demonstrate that a source other than a regulated unit caused the increase or that the increase resulted from error in sampling, analysis, or evaluation. The Permittee shall submit a permit modification application in accordance with Condition IV.J.10.d unless the demonstration successfully shows that a source other than the regulated unit caused the increase or that the increase resulted from errors in sampling, analysis or evaluation and the Illinois EPA concurs.

To make this demonstration, the Permittee shall:

- a. Notify the Illinois EPA in writing that they intend to make this demonstration. This notification must be submitted to the Illinois EPA within seven (7) days of the date that the increase is discovered.
- b. Submit a report to the Illinois EPA which demonstrates that a source other than a regulated unit caused the increase, or that the increase resulted from error in sampling, analysis, or evaluation. This report must be submitted within ninety (90) days of the date that the increase is discovered.
- c. Submit to the Illinois EPA an application to make any appropriate changes to the Groundwater Detection Monitoring Program. This application must be submitted within ninety (90) days of the date that the increase is discovered.
- d. Continue to monitor in accordance with the detection monitoring program at the facility.

K. REQUEST FOR PERMIT MODIFICATION

- 1. If the Permittee or the Illinois EPA determines that the Detection Monitoring Program no longer satisfies the requirements of 35 Ill. Adm. Code 724.198, the Permittee must, within ninety (90) days, submit an application for a permit

modification to the Illinois EPA to make any appropriate changes to the program which will satisfy the regulations.

2. Conditions in this section of the Permit may be modified in accordance with 35 Ill. Adm. Code 705.128 if there is cause for such modification, as defined in 35 Ill. Adm. Code 702.184. Causes for modification identified in this section include, but are not limited to, alterations to the permitted facility, additional information which would have justified the application of different permit conditions at the time of issuance, and new regulations.

## SECTION IV-A: SHALLOW ZONE OBSERVATION MONITORING PROGRAM

### A. SUMMARY

In addition to the Groundwater Detection Monitoring Program utilized to monitor the uppermost aquifer at the facility, Phase A of Zion Site 1 Landfill has two existing wells to monitor groundwater in the shallow groundwater zone at the facility. These groundwater monitoring wells are intended to detect any releases from the landfill to the shallow groundwater zone that could potentially impact the uppermost aquifer at the facility.

### B. IMPLEMENTATION

1. The Permittee shall implement the Shallow Zone Observation Monitoring Program upon the effective date of this permit. On that date, the shallow zone observation monitoring requirements set forth in this permit shall previously established requirements.
2. The Permittee shall carry out the shallow zone observation monitoring specified in this permit on the groundwater beneath the Phase A of Zion Site 1 Landfill. For the purpose of this permit the shallow zone consists of discontinuous sand and silt lenses.

### C. WELL LOCATION AND CONSTRUCTION

1. The Permittee shall install and maintain groundwater monitoring wells at the locations specified on the map presented in the approved Permit Renewal Application and in conformance with the following list:

<u>Well No.</u>	<u>Well Depth top of Inner Casing (ft.)</u>	<u>Well Bottom Elevation (ft.-MSL)</u>	<u>Well Screen Interval (ft.-MSL)</u>
GT02	33.4	712.3	717.3-712.3
GT05	54.4	707.9	712.9-707.9

2. Construction of each new monitoring well/piezometer must be in accordance with the diagram contained in Attachment B to this permit unless otherwise approved in writing by the Illinois EPA. Any new monitor wells/piezometers to be installed must be continuously sampled and logged on Illinois EPA boring logs which can be found at <http://www.epa.state.il.us/land/regulatory/programs/permits-and-management/form/index.html#groundwater-permits>.
3. The Permittee shall notify the Illinois EPA within thirty (30) days in writing if any of the wells identified in Condition IV-A.C.1 are damaged or the structural integrity has been compromised. A proposal for the replacement of the subject well shall accompany this notification. The well shall not be plugged until the new well is on-line and monitoring data has been obtained and verified, unless the well is extremely damaged and would create a potential route for groundwater contamination. Prior to replacing the subject well, the Permittee shall obtain written approval from the Illinois EPA regarding the proposed installation procedures and construction.
4. Should any well become consistently dry or unserviceable, a replacement well shall be provided within ten (10) feet of the existing well. This well shall monitor the same zone as the existing well and be constructed in accordance with the current Illinois EPA groundwater monitoring well construction standards at the time the wells are replaced. A replacement well which is more than ten (10) feet from the existing well or does not monitor the same geologic zone must be approved by the Illinois EPA and designated as a new well.
5. The Permittee shall submit boring logs, construction diagrams and data sheets from installation and development of a new or replacement well to the Illinois EPA at the address below within thirty (30) days of the date that installation of the well is completed. In addition, the Permittee shall submit certification that plugging and abandonment of a well was carried out in accordance with the approved procedures to the Illinois EPA at the address below within thirty (30) days of the date that the well is plugged and abandoned. All information should be submitted to the appropriate State Agencies.

Illinois Environmental Protection Agency  
Bureau of Land - #33  
Permit Section  
1021 North Grand Avenue East  
Post Office Box 19276  
Springfield, Illinois 62794-9276

6. All wells/piezometers shall be equipped with protective caps and locks. Monitoring wells or piezometers located in high traffic areas must be protected with bumper guards or other alternate barriers.
7. All wells/piezometers not utilized in the approved groundwater monitoring system, but retained by the facility, must be constructed and maintained in accordance with 77 Ill. Adm. Code 920 regulations. Monitoring wells that are improperly constructed must be abandoned in accordance with Condition IV-A.C.3.

#### D. MONITORING PARAMETERS

1. The Permittee shall determine groundwater quality at the monitoring wells identified in IV-A.C.1, semi-annually and annually during the active life (including closure and post-closure care period) of the landfill. Samples collected during the semi-annual and annual sampling events of each year shall be analyzed for the field parameters and hazardous waste constituents below.

##### List G1 – Semi-Annual Groundwater Sampling

<u>Field Parameters</u>	<u>Storet Number</u>	<u>Reporting Units</u>
pH *	00400	
Specific Conductance **	00094	micromhos/cm
Temperature of Water Sample	00011	(°F)
Turbidity	45626	Ntus
Depth to Water (below land surface)	72019	Feet
Depth to Water (below measuring point)	72109	Feet
Elevation of Bottom of Well#	72020	Ft-MSL
Elevation of Groundwater Surface	71993	Ft-MSL
Elevation of Measuring Point (top of casing)##	72110	Ft-MSL

# Shall be determined once every five (5) years during the annual sampling event in accordance with Condition IV-A.F.3.

## Shall be surveyed once every five (5) years, or at the request of the Illinois EPA, or whenever the elevation changes as required by Condition IV-A.F.2.

\* BGQs for pH in well GT02 (6.80-7.52) and well GT05 (6.67-7.65).

\*\* BGQs for Specific Conductance in Well GT02 (2098 micromhos/cm) and well GT05 (4142 micromhos/cm).

<u>Parameters</u>	<u>Storet Number</u>	<u>BGQs (ug/L)</u>
Acetone	81552	100
Acrolein	34210	25
Acrylonitrile	34215	10
Benzene	34030	5
Bromodichloromethane	32101	5
Bromoform	32104	5
Bromomethane	34413	5
Carbon Tetrachloride	32102	5
Chlorobenzene	34301	5
Chloroethane	34311	10
2-Chloroethyl Vinyl Ether	34576	10
Chloroform	32106	5
Chloromethane	34418	10
1,1-Dichloroethane	34496	5
1,2-Dichloroethane	34531	5
1,1-Dichloroethene	34501	5
trans-1,2-Dichloroethene	34546	5
1,2-Dichloropropane	31541	5
cis-1,3-Dichloropropene	34704	5
trans-1,3-Dichloropropene	34699	5
1,4-Dioxane	81582	120
Ethyl Benzene	78113	5
Isobutyl Alcohol	77033	100
Methylene Chloride	34423	5
Pyridine	77045	5
1,1,2,2-Tetrachloroethane	34516	5
Toluene	34010	5
1,1,1-Trichloroethane	34506	5
1,1,2-Trichloroethane	34511	5
Trichloroethene	39180	5
Vinyl Chloride	39175	2
1,2-Dichlorobenzene	34536	10
1,3-Dichlorobenzene	34566	10

<u>Parameters</u>	<u>Storet Number</u>	<u>BGOs (ug/L)</u>
1,4-Dichlorobenzene	34571	10
Hexachlorobutadiene	39702	10
Hexachloroethane	34396	10
Naphthalene	34696	10
Nitrobenzene	34447	10
1,2,4-Trichlorobenzene	34551	10

List G2 – Annual Groundwater Sampling

<u>Parameters</u>	<u>Storet Number</u>	<u>Well GT02 BGOs (ug/L)</u>	<u>Well GT05 BGOs (ug/L)</u>
Barium (dissolved)	01005	1000	1000
Barium (total)	01007	1000	1000
Cadmium (dissolved)	01025	2	6
Cadmium (total)	01027	1	2
Chromium (dissolved)	01030	10	20
Chromium (total)	01034	56	10
Cyanide (dissolved)	00723	0.005	0.005
Cyanide (total)	00720	0.005	0.005
Lead (dissolved)	01049	7	5
Lead (total)	01051	6	5
Mercury (dissolved)	71890	0.2	0.2
Mercury (total)	71900	0.2	0.2
Nickel (dissolved)	01065	100	299
Nickel (total)	01067	125	338

Note: All constituents with “dissolved” labeled to the right shall be determined using groundwater samples which have been filtered through a 0.45 micron filter and used for statistical purposes along with TOC.

2. Alternate concentration limits may be established in accordance with 35 Ill. Adm. Code 724.194(b) where the Permittee can determine a constituent will not pose a substantial hazard to human health or the environment. The alternate

concentration limits proposed by the facility must be approved by the Illinois EPA.

3. The Permittee shall establish the intrawell background values in accordance with the procedures specified in Section E of the approved Permit Renewal Application.

E. SHALLOW ZONE OBSERVATION MONITORING PROGRAM

1. The Permittee shall determine groundwater quality at each monitoring well identified in Condition IV-A.C.1 semi-annually and annually during the active life of the regulated unit (including the closure and post-closure care periods). The Permittee shall express the groundwater quality at each monitoring well in a form necessary for the determination of statistically significant changes (i.e. means, variances, etc.).
2. The Permittee shall determine the groundwater elevations in the shallow groundwater zone semi-annually, and report to the Illinois EPA at least annually from monitoring wells identified in Condition IV-A.C.1.
3. The Permittee shall determine whether there is a statistically significant increase, (or decrease in the case of pH) over the background values established for each parameter identified in Condition IV-A.D.1 or the 35 Ill. Adm. Code 620, Class I Groundwater Quality Standards, whichever is greater, each time groundwater quality is determined.

F. GROUNDWATER ELEVATION

1. The Permittee shall determine the groundwater surface elevation referenced to mean sea level (MSL) at each well each time groundwater is sampled in accordance with Condition IV-A.I.3.
2. The Permittee shall report the surveyed elevation of stick-up referenced to MSL when the well is installed (with as-built diagrams) and every five years; or at the request of the Illinois EPA; or whenever the elevation changes in accordance with Condition IV-A.I.4.

3. Elevation, as referenced to MSL, of the bottom of each monitoring well (STORET 72039), is to be reported once every five (5) years, or whenever the pumps are removed from the well for maintenance; or at the request of the Illinois EPA; or whenever the elevation changes in accordance with IV-A.I.5. The mandatory measurement shall be taken during the annual sampling events.

G. SAMPLING AND ANALYTICAL PROCEDURES

1. The Permittee shall use the following techniques and procedures described in Section E of the approved Permit Renewal Application except as modified below, when obtaining and analyzing samples from the groundwater monitoring wells described in Condition IV-A.C.1 above.
  - a. Samples shall be collected using the techniques described in Section E of the approved Permit Renewal Application.
  - b. Samples shall be preserved and shipped (when shipped off-site for analysis) in accordance with the procedures specified in Section E of the approved Permit Renewal Application.
  - c. Samples shall be analyzed in accordance with the procedures specified Section E of in the approved Permit Renewal Application.
  - d. Samples shall be tracked and controlled using the chain-of-custody procedures specified in Section E of the approved Permit Renewal Application.

H. STATISTICAL PROCEDURES

When evaluating the monitoring results in accordance with Condition IV-A.E, the Permittee shall use the following procedures:

1. The statistical methods to be used shall be as specified in Section E of the approved Permit Renewal Application.
2. Analytical data shall be compared to the parameter background values established in accordance with Section E of the approved Permit Renewal Application.

3. For Constituents which have not been detected in the groundwater, a value of two times the practical quantitation limit (PQL) shall be used as the background concentration.

I. REPORTING AND RECORDKEEPING

1. The Permittee shall enter all monitoring, testing, and analytical data obtained in accordance with Condition IV-A.D, IV-A.E, IV-A.F, IV-A.G and IV-A.H in the operating record. The data must include all computations, calculated means, variances, t-statistic values, and t-statistic results or results of statistical test that the Illinois EPA has determined to be equivalent.
2. Samples collected to meet the requirements of the groundwater monitoring program described in Conditions IV-A.D, IV-A.E, IV-A.F and IV-A.H shall be collected and reported, as identified in the table below. All additional information required by the groundwater monitoring program (as Specified in Conditions IV-A.D, IV-A.E, IV-A.F and IV-A.H) shall also be submitted to the Illinois EPA at the address listed in Condition IV-A.C.5 in accordance with this schedule.

<u>Samples to be Collected During The Months of</u>	<u>Results Submitted to the Illinois EPA by the Following</u>	<u>Parameters</u>
April – June	July 15	List G1 and G2
October – December	January 15	List G1

3. Groundwater surface elevation data, measured pursuant to Condition IV-A.F.1 shall be collected semi-annually and submitted to the Illinois EPA as identified in the table above.
4. The Permittee shall report the surveyed elevation, as required by Condition IV-A.F.2, of the top of the well casing “stick-up”, referenced to MSL in accordance with the following schedule:
  - a. For wells identified in Condition IV-A.C.1, every five (5) years (during the annual sampling event); or at the request of the Illinois EPA; or whenever the elevation changes.

- b. For any new wells, at the time of installation and reported in the as-built diagrams, subsequent measurements shall be made every five (5) years (during the annual sampling event), or at the request of the Illinois EPA, or whenever the elevation changes.
5. Elevation of the bottom of each monitoring well identified in Condition IV-A.C.1, as referenced to MSL, is to be reported every five (5) years. This measurement shall be taken during the annual sampling event (Storet 72020) in accordance with Condition IV-A.F.3.
6. Information required by Conditions IV-A.I.2, IV-A.I.3, IV-A.I.4 and IV-A.I.5 must be submitted in an electronic format. The information is to be submitted, as fixed-width text files formatted as found in Attachment B, in accordance with the schedule found in Condition IV-A.I.2 above. Additional guidance regarding the submittal of the information in an electronic format can be found at <http://www.epa.state.il.us/land/regulatory-programs/electronic-intro.html>.
7. The Permittee shall submit a completed "RCRA Facility Groundwater, Leachate and Gas Reporting Form" (LPC-592) as a cover sheet for any notices or reports required by the permit for identification purposes. Only one copy of the LPC-592 must accompany your submittal. However, the Permittee must submit one (1) original and (excluding the groundwater and leachate monitoring results submitted in an electronic format) a minimum of two (2) copies of each notice or report you submit to the Illinois EPA. The form is not to be used for permit modification requests.
8. The Permittee shall report all information to the Illinois EPA in a form which can be easily reviewed. All submittals contain tables of data drawings and text (as necessary) to accurately describe the information contained in the submittal.
9. If the Permittee determines, pursuant to Condition IV-A.E.3, that there is a statistically significant increase for any of the parameters specified in Condition VI-A.D.1 at any monitoring well in Condition VI-A.C.1 the Permittee shall:
  - a. Notify the Illinois EPA in writing within seven days indicating which parameters and wells have shown statistical changes and provide the statistical calculations. This notification shall be submitted to the Illinois EPA within seven (7) days of the date that the increase is discovered.

- b. Sample the groundwater in the affected well(s) listed in Condition IV-A.C.1 and determine the concentration of all the hazardous wastes and the hazardous waste constituents identified in Appendix I of 35 Ill. Adm. Code 724 such that the results will accompany their permit modification required by Condition IV-A.I.9.d.
- c. For any Appendix I compounds found in the analysis pursuant to this Condition, the Permittee may resample within one month and repeat analysis for those compounds detected. If results of the second analysis confirm the initial results, then these constituents will form the basis for compliance monitoring. If the Permittee does not resample for the compounds pursuant to this Condition, the hazardous constituents found during the initial Appendix I analysis will form the basis for compliance monitoring.
- d. Submit to the Illinois EPA an application for a permit modification to establish a compliance monitoring program meeting the requirements of 35 Ill. Adm. Code 724.199. The application shall be submitted to the Illinois EPA within ninety (90) days of the date that the exceedence is discovered. Furthermore, the application must include the following information:
  - i. An identification of the concentration of any 35 Ill. Adm. Code 724, Appendix I constituent(s) found in the groundwater at each monitoring well;
  - ii. Any proposed changes to the groundwater monitoring system at the facility necessary to meet the requirements of 35 Ill. Adm. Code 724.199; and
  - iii. Any proposed changes to the monitoring frequency, sampling and analysis procedure or methods or statistical procedures used at the facility necessary to meet the requirements of 35 Ill. Adm. Code 724.199.
  - iv. For each hazardous constituent found, a proposed concentration limit under 35 Ill. Adm. Code 724.194(a)(1) or 724.194(a)(2), or a notice

of intent to seek an alternate concentration limit for a hazardous constituent under 35 Ill. Adm. Code 724.194(b).

- e. Submit to the Illinois EPA a corrective action feasibility plan to meet the requirements of 35 Ill. Adm. Code 724.200 unless the concentrations of all hazardous constituents identified under Condition IV-A.I.9.b above are listed in 35 Ill. Adm. Code 620.410 and their concentrations do not exceed the respective Groundwater Quality Standards or the Permittee has sought an alternate concentration limits under Condition IV-A.I.9.d.iv above for every hazardous constituent identified under Condition IV-A.I.b above. This plan must be submitted to the Illinois EPA within 180 days of the date the increases is discovered.
  - f. Submit to the Illinois EPA all data necessary to justify and alternate concentration limit for a hazardous constituent sought under Condition IV-A.I.9.d.iv above. This plan must be submitted to the Illinois EPA within 180 days of the date the increases is discovered.
10. If the Permittee determines, pursuant to Condition IV-A.E.3, that there is a statistically significant change above or for pH below the background values for the parameters specified in Condition IV-A.D.1, the Permittee may demonstrate that a source other than a regulated unit caused the increase or that the increase resulted from error in sampling, analysis, or evaluation. The Permittee shall submit a permit modification application in accordance with Condition IV-A.I.9.d above unless the demonstration successfully shows that a source other than the regulated unit caused the increase or that the increase resulted from errors in sampling, analysis or evaluation and the Illinois EPA concurs.

To make this demonstration, the Permittee shall:

- a. Notify the Illinois EPA in writing that they intend to make this demonstration. This notification must be submitted to the Illinois EPA within seven (7) days of the date that they intend to make this demonstration.
- b. Submit a report to the Illinois EPA which demonstrates that a source other than the regulated unit caused the increase, or that the increase resulted from error in sampling, analysis, or evaluation. This report must be

submitted within ninety (90) days of the date that the increase is discovered.

- c. Submit to the Illinois EPA an application to make any appropriate changes to the Shallow Zone Observation Monitoring Program. This report must be submitted within ninety (90) days of the date that the increase is discovered.
- d. Continue to monitor in accordance with the Shallow Zone Observation Monitoring Program at the facility.

J. REQUEST FOR PERMIT MODIFICATION

- 1. If the Permittee or the Illinois EPA determines that the Detection Monitoring Program no longer satisfies the requirements of 35 Ill. Adm. Code 724.198, the Permittee must, within ninety (90) days, submit an application for a permit modification to the Illinois EPA to make any appropriate changes to the program which will satisfy the regulations.
- 2. Conditions in this section of the Permit may be modified in accordance with 35 Ill. Adm. Code 705.128 if there is cause for such modification, as defined in 35 Ill. Adm. Code 702.184. Causes for modification identified in this section include, but are not limited to, alterations to the permitted facility, additional information which would have justified the application of different permit conditions at the time of issuance, and new regulations.

## SECTION V: CORRECTIVE ACTION FOR SOLID WASTE MANAGEMENT UNITS

### A. INTRODUCTION

1. In accordance with Section 3004(u) of RCRA and 35 Ill. Adm. Code 724.201, the Permittee shall institute such corrective action as necessary to protect human health and the environment from all releases of hazardous wastes or hazardous constituents, listed in 35 Ill. Adm. Code 721, Appendix H from any solid waste management unit (SWMU) at its facility in Zion, Illinois.
2. Illinois EPA and USEPA issued a joint RCRA permit to this facility in 1988. The USEPA portion of that permit contained requirements for addressing two solid waste management units at the facility. The Permittee has adequately addressed corrective action at these two SWMUs.
3. The requirements of 35 Ill. Admin. Code 620 and 742 must be met in determining remediation objectives for all corrective action activities. However, the Permittee must provide corrective action, as appropriate, for any future releases from SWMUs present at the facility.
4. All Illinois EPA final actions on corrective action submittals are subject to the appeal provisions of Sections 39 and 40 of the Illinois Environmental Protection Act.
5. Unless there is a desire to modify specific requirements set forth in this Section, information submitted to Illinois EPA regarding the corrective action requirements set forth in this Section is not a request to modify this permit nor subject to the requirements of 35 Ill. Adm. Code 703, Subpart G.
  - a. A completed Illinois EPA RCRA Corrective Action Certification form (available on Illinois EPA's internet site ([www.epa.state.il.us](http://www.epa.state.il.us))) must accompany all corrective action related information submitted to Illinois EPA.
  - b. To allow for proper review of all corrective action related information submitted to Illinois EPA, the original and two copies of the information must be submitted.

B. REQUIREMENTS FOR ADDRESSING NEWLY-IDENTIFIED SOLID WASTE MANAGEMENT UNIT(S)

1. The Permittee shall notify the Illinois EPA in writing of any newly-identified SWMU(s) discovered during the course of groundwater monitoring, field investigations, environmental audits, or other means, no later than sixty (60) calendar days after discovery. The notification shall provide the following information, as available:
  - a. The location of the newly-identified SWMU in relation to other SWMUs on a scaled map or drawing;
  - b. The type and past and present function of the unit;
  - c. The general dimensions, capacities, and structural description of the unit (available drawings and specifications provided);
  - d. The period during which the unit was operated;
  - e. The specifics on all materials, including but not limited to, wastes and hazardous constituents, that have been or are being managed at the SWMU, to the extent available; and
  - f. The results of any relevant available sampling and analysis which may aid in determining whether releases of hazardous wastes or hazardous constituents have occurred or are occurring from the unit.
2. If the submitted information demonstrates a potential for a release of hazardous waste or hazardous waste constituents from the newly identified SWMU, the Illinois EPA may request in writing, that the Permittee prepare a Solid Waste Management Unit (SWMU) Assessment Plan and a proposed schedule of implementation and completion of the Plan for any additional SWMU(s) discovered subsequent to the issuance of this permit. Guidance for the development of a SWMU assessment plan will be provided in Illinois EPA's written request for such a plan.

This SWMU Assessment plan must propose investigations, including field investigations if necessary, to determine the release potential to specific environmental media for the newly-identified SWMU. The SWMU Assessment

Plan must demonstrate that the sampling and analysis program, if applicable, is capable of yielding representative samples and must include parameters sufficient to identify migration of hazardous waste and hazardous constituents from the newly-discovered SWMU(s) to the environment.

3. The Illinois EPA shall either approve, approve with conditions, or disapprove the Plan in writing. If the plan is approved, the Permittee shall begin to implement the Plan within forty-five (45) calendar days of receiving such written notification. If the Plan is disapproved, the Illinois EPA shall notify the Permittee in writing of the Plan's deficiencies and specify a due date for submittal of a revised plan.
4. The Permittee shall submit a report documenting the results of the approved SWMU Assessment Plan to the Illinois EPA in accordance with the schedule in the approved SWMU Assessment Plan. The SWMU Assessment Report shall describe all results obtained from the implementation of the approved SWMU Assessment Plan.
5. Additional investigation, and corrective measures as necessary, shall be carried out to ensure the requirements of 35 Ill. Adm. Code 724.201 are met. Further guidance regarding compliance with these requirements will be provided as necessary. The requirements of 35 Ill. Adm. Code 742 must also be met.

C. FUTURE RELEASES FROM SWMUs

There exists a potential that a release may occur in the future from SWMUs identified in the RFA or RFI which did not require any corrective action at the time that the RFA or RFI was completed. If the Permittee discovers that a release has occurred from such a SWMU in the future, then the Illinois EPA must be notified of this release within sixty (60) days after its discovery. This notice must contain the information identified in Condition V.B.1 above. Upon the Illinois EPA's written request, the Permittee shall determine the nature and extent of the contamination by following the procedures set forth in Subsection B above.

D. INTERIM MEASURES

At any time during the course of this permit, the Permittee may initiate interim measures for the purpose of preventing continuing releases and/or mitigating the results of releases and/or mitigating the migration of hazardous wastes or hazardous constituents. It shall not be necessary to conduct all phases of an investigation prior to implementing an interim measure if the Illinois EPA and the Permittee agree that a problem can be corrected, or a release cleaned up, without additional study and/or without a formal corrective measures study (CMS).

1. Prior to implementing any interim measures, the Permittee must submit detailed information regarding the proposed interim measure to the Illinois EPA for approval. This information shall include, at a minimum:
  - a. Objectives of the interim measures: how the measure is mitigating a potential threat to human health and the environment and/or is consistent with and integrated into any long-term solution at the facility;
  - b. Design, construction, and maintenance requirements;
  - c. Schedules for design and construction; and
  - d. Schedules for progress reports.
2. If the Illinois EPA determines that a release cannot be addressed without additional study and/or a formal CMS, then the Illinois EPA will notify the Permittee that these must be performed. Any proposal made under this provision or any other activity resulting from such proposal shall not affect the schedule for implementation of any other portion of the permit.
3. If the Illinois EPA determines that interim measures are necessary to protect human health or the environment, the Permittee will be notified by way of a permit modification.

E. FINANCIAL ASSURANCE

35 Ill. Adm. Code 724.201 requires that financial assurance be established for completing required corrective action at solid waste management units. As all corrective action

efforts at this facility have been completed, the current cost estimate for corrective action at this facility is \$0.

1. The Permittee shall demonstrate compliance with the financial assurance requirements of 35 Ill. Adm. Code 724.201 by providing documentation of financial assurance using a mechanism specified in 35 Ill. Adm. Code 724.243, in at least the amount of the approved corrective action cost estimate. The words "completion of corrective action" shall be substituted for "closure and/or post-closure," as appropriate in the financial instrument specified in 35 Ill. Adm. Code 724.251. The Illinois EPA may accept financial assurance for completion of corrective action in combination with another financial mechanism that is acceptable under 35 Ill. Adm. Code 724.246 at its discretion.
2. The financial assurance requirements of 35 Ill. Adm. Code 724.201 must also be met for any investigative or corrective action efforts carried out in accordance with Subsections B or C above. Detailed cost estimates must be developed for any activities carried out under this Section and must accompany any workplan/report submitted to Illinois EPA for review and approval. Appropriate documentation of financial assurance in at least the amount of the approved cost estimate must be submitted to Illinois EPA within 60 days after the cost estimates are approved.
3. Financial assurance for corrective action must be updated, as necessary, to reflect the current status of the RCRA corrective action program at this facility. In addition, this financial assurance must be adjusted annually for inflation.

## SECTION VI: STANDARD CONDITIONS

### A. INTRODUCTION

This section contains standard conditions applicable to Phase A of the Zion Site 1 Landfill. These standard conditions pertain to: (1) general requirements; and (2) post-closure care of the closed Phase A Landfill.

### B. GENERAL REQUIREMENTS

1. EFFECT OF PERMIT (35 IAC 702.181) The existence of a RCRA permit shall not constitute a defense to a violation of the Environmental Protection Act or Subtitle G, except for development, modification or operation without a permit. Issuance of this permit does not convey property rights or any exclusive privilege. Issuance of this permit does not authorize any injury to persons or property or invasion of other private rights, or infringement of state or local law or regulations.
2. PERMIT ACTIONS (35 IAC 702.146) This permit may be modified, reissued or revoked for cause as specified in 35 IAC 703.270 through 703.273 and Section 702.186. The filing of a request by the Permittee for a permit modification or revocation, or a notification of planned changes or anticipated noncompliance on the part of the Permittee does not stay the applicability or enforceability of any permit condition.
3. SEVERABILITY (35 IAC 700.107) The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.
4. PERMIT CONDITION CONFLICT (35 IAC 702.160) In case of conflict between a special permit condition and a standard condition, the special condition will prevail.
5. DUTY TO COMPLY (35 IAC 702.141 and 703.242) The Permittee shall comply with all conditions of this permit except for the extent and for the duration such noncompliance is authorized by an emergency permit. Any permit noncompliance constitutes a violation of the Environmental Protection Act and is

grounds for enforcement action; permit revocation or modification; or for denial of a permit renewal application.

6. DUTY TO REAPPLY (35 IAC 702.142 and 703.125) If the Permittee wishes to continue an activity allowed by this permit after the expiration date of this permit, the Permittee must apply for a new permit at least 180 days before this permit expires, unless permission for a later date has been granted by the Agency.
7. PERMIT EXPIRATION This permit and all conditions herein will remain in effect beyond the permit's expiration date if the Permittee has submitted a timely, complete application (see 35 IAC 703.181-703.209) and, through no fault of the Permittee, the Agency has not issued a new permit as set forth in 35 IAC 702.125.
8. NEED TO HALT OR REDUCE ACTIVITY NOT A DEFENSE (35 IAC 702.143) It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
9. DUTY TO MITIGATE (35 IAC 702.144) In the event of noncompliance with the permit, the Permittee shall take all reasonable steps to minimize releases to the environment, and shall carry out such measures as are reasonable to prevent significant adverse impacts on human health or the environment.
10. PROPER OPERATION AND MAINTENANCE (35 IAC 702.145) The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory, and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit.
11. DUTY TO PROVIDE INFORMATION (35 IAC 702.148) The Permittee shall furnish to the Agency, within a reasonable time, any relevant information which the Agency may request to determine whether cause exists for modifying, revoking and reissuing or terminating this permit, or to determine compliance with this permit. The Permittee shall also furnish to the Agency, upon request, copies of records required to be kept by this permit.

12. INSPECTION AND ENTRY (35 IAC 702.149) The Permittee shall allow an authorized representative of the Agency, upon the presentation of credentials and other documents as may be required by law, to:
  - a. Enter at reasonable times upon the Permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
  - b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
  - c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
  - d. Sample or monitor, at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the appropriate Act, any substances or parameters at any location.
13. MONITORING AND RECORDS. (35 IAC 702.150)
  - a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The method used to obtain a representative sample of the waste must be the appropriate method from Appendix A of 35 IAC 721. Laboratory methods must be those specified in Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, SW-846, latest versions; Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, latest versions; or an equivalent method as specified in the approved Waste Analysis Plan.
  - b. The Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports and records required by this permit, and records of all data used to complete the application for this permit for a period of at least 3 years from the date of the sample, measurement, report or application. These periods may be extended by request of the Agency at any time. The Permittee shall maintain records from all groundwater monitoring wells and associated groundwater surface elevations, for the active life of the facility, and for disposal facilities for the post-closure care period as well.

- c. Records of monitoring information shall include:
  - i. The date(s), exact place, and time of sampling or measurements;
  - ii. The individual(s) who performed the sampling or measurements;
  - iii. The date(s) analyses were performed;
  - iv. The individual(s) who performed the analyses;
  - v. The analytical technique(s) or method(s) used; and
  - vi. The result(s) of such analyses.
- 14. REPORTING PLANNED CHANGES (35 IAC 703.244 and 702.152(a)) The Permittee shall give notice to the Agency as soon as possible of any planned physical alterations or additions to the permitted facility. For a new HWM facility, the permittee may not commence treatment, storage or disposal of hazardous waste; and for a facility being modified the permittee may not treat, store or dispose of hazardous waste in the modified portion of the facility, until:
  - a. The Permittee has submitted to the Agency by certified mail or hand delivery a letter signed by the Permittee and a registered professional engineer stating that the facility has been constructed or modified in compliance with the permit; and
  - b. The Agency has inspected the modified or newly constructed facility and finds it is in compliance with the condition of the permit; or if, within 15 days of the date of submission of the letter in paragraph (a), the Permittee has not received notice from the Agency of its intent to inspect, prior inspection is waived and the Permittee may commence treatment, storage or disposal of hazardous waste.
- 15. ANTICIPATED NONCOMPLIANCE (35 IAC 702.152(b) and 703.247) The Permittee shall give advance notice to the Agency of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements. For a new facility, the Permittee shall not treat, store or dispose of hazardous waste; and for a facility being modified, the Permittee shall not treat, store or dispose of hazardous waste in the modified portion of the facility, except as provided in Section 703.280, until:

- a. The Permittee has submitted to the Agency by certified mail or hand delivery a letter signed by the Permittee and a registered professional engineer stating that the facility has been constructed or modified in compliance with the permit; and
  - b. Either:
    - (1) The Agency has inspected the modified or newly constructed facility and finds it is in compliance with the conditions of the permit; or
    - (2) Within 15 days after the date of submission of the letter in paragraph i. above, the Permittee has not received notice from the Agency of its intent to inspect, the Permittee may commence treatment, storage or disposal of hazardous waste.
16. TRANSFER OF PERMITS (35 IAC 702.152(c)) This permit is not transferable to any person except after notice to the Agency. The Agency may require modification of the permit to change the name of the Permittee and incorporate such other requirements as may be necessary under the appropriate Act. (See Sections 703.260 and 703.270, in some cases modification is mandatory.)
17. MONITORING REPORTS (35 IAC 702.152(d)) Monitoring results shall be reported at the intervals specified in the permit.
18. COMPLIANCE SCHEDULES (35 IAC 702.152(e)) Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than specified in 35 IAC 702.162.
19. TWENTY-FOUR HOUR REPORTING (35 IAC 702.152(f) and 703.245(b))
- a. The Permittee shall report to the Agency any noncompliance with the permit which may endanger health or the environment. Any such information shall be reported orally within 24 hours from the time the Permittee becomes aware of the following circumstances. This report shall include the following:
    - (1) Information concerning the release of any hazardous waste that may cause an endangerment to public drinking water supplies.

- (2) Information concerning the release or discharge of any hazardous waste or of a fire or explosion at the HWM facility, which could threaten the environment or human health outside the facility.
  - b. The description of the occurrence and its cause shall include:
    - (1) Name, address, and telephone number of the owner or operator;
    - (2) Name, address, and telephone number of the facility;
    - (3) Date, time, and type of incident;
    - (4) Name and quantity of material(s) involved;
    - (5) The extent of injuries, if any;
    - (6) An assessment of actual or potential hazards to the environment and human health outside the facility, where applicable; and
    - (7) Estimated quantity and disposition of recovered material that resulted from the incident.
  - c. A written submission shall also be provided within 5 days of the time the Permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance including exact dates and times and if the noncompliance has not been corrected; the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. The Agency may waive the five day written notice requirement in favor of a written report within fifteen days.
20. OTHER NONCOMPLIANCE (35 IAC 702.152(g)) The Permittee shall report all instances of noncompliance not otherwise required to be reported under Standard Conditions 17, 18, and 19, at the time monitoring reports, as required by this permit, are submitted. The reports shall contain the information listed in Standard Condition 19.
21. OTHER INFORMATION (35 IAC 702.152(h)) Where the Permittee becomes aware that it failed to submit any relevant facts in the permit application, or submitted incorrect information in a permit application or in any report to the Agency, the Permittee shall promptly submit such facts or information.

22. REPORTING REQUIREMENTS (35 IAC 724.175) The report required by 35 Ill. Adm. Code 724.175 shall be submitted in addition to those required by 35 Ill. Adm. Code 702.152 (reporting requirements).
23. SUBMITTAL OF REPORTS OR OTHER INFORMATION All written reports or other written information required to be submitted by the terms of this permit shall be sent to:  
  
Illinois Environmental Protection Agency  
Division of Land Pollution Control #24  
1021 North Grand Avenue East  
Post Office Box 19276  
Springfield, Illinois 62794-9276
24. SIGNATORY REQUIREMENT (35 IAC 702.151) All permit applications, reports or information submitted to the Agency shall be signed and certified as required by 35 IAC 702.126.
25. CONFIDENTIAL INFORMATION Any claim of confidentiality must be asserted in accordance with 35 IAC 702.103 and 35 IAC 161.
26. DOCUMENTS TO BE MAINTAINED AT FACILITY SITE The Permittee shall maintain at the facility, the following documents and amendments, revisions and modifications to these documents:
  - a. The post-closure care plan as required by 35 IAC 724.212(a) and this permit.
  - b. Cost estimate for facility post-closure care as required by 35 IAC 724.242(d) and this permit.
  - c. Operating record as required by 35 IAC 724.173 and this permit.
  - d. Inspection schedules as required by 35 IAC 724.115(b) and this permit.

C. POST-CLOSURE

1. CARE AND USE OF PROPERTY The Permittee shall provide post-closure care for the facility as required by 35 IAC 724.217 and in accordance with the approved post-closure plan.
2. AMENDMENT TO POST-CLOSURE PLAN The Permittee must amend the post-closure plan whenever a change in the facility operation plans or facility design affects the post-closure plan or when an unexpected event has occurred which has affected the post-closure plan pursuant to 35 IAC 724.218(d).
3. COST ESTIMATE FOR FACILITY POST-CLOSURE The Permittee's original post-closure cost estimate, prepared in accordance with 35 IAC 724.244, must be:
  - a. Adjusted for inflation either 60 days prior to each anniversary of the date on which the first closure cost estimate was prepared or if using the financial test or corporate guarantee, within 30 days after close of the firm's fiscal year.
  - b. Revised whenever there is a change in the facility's post-closure plan increasing the cost of closure.
  - c. Kept on record at the facility and updated.
4. FINANCIAL ASSURANCE FOR POST-CLOSURE CARE The Permittee shall demonstrate compliance with 35 IAC 724.245 by providing documentation of financial assurance, as required by 35 IAC 724.251, in at least the amount of the cost estimates required by the previous permit condition. Changes in financial assurance mechanisms must be approved by the Agency pursuant to 35 IAC 724.245.
5. LIABILITY REQUIREMENTS The Permittee shall demonstrate continuous compliance with the requirements of 35 IAC 724.247 and the documentation requirements of 35 IAC 724.251.
6. INCAPACITY OF OWNERS OR OPERATORS, GUARANTORS, OR FINANCIAL INSTITUTIONS The Permittee shall comply with 35 IAC 724.248 whenever necessary.

## SECTION VII: SPECIAL CONDITIONS

### A. HAZARDOUS WASTE MANAGEMENT ACTIVITIES

1. In addition to the terms and conditions of this permit, the requirements of 35 Ill. Admin. Code 722 must be met in regards to the management of hazardous waste generated in carrying out the requirements of this permit. The main hazardous waste generated at this facility is leachate extracted from the closed Phase A landfill.
2. Documentation of compliance with the requirements of 35 Ill. Admin. Code 722 must be maintained by the Permittee.

### B. PUBLIC NOTIFICATION AND PARTICIPATION

1. A repository of all information submitted to Illinois EPA as part of the requirements of this permit must be established and maintained at the Zion-Benton Public Library. This repository must be well organized and kept up to date. A comprehensive list of all documents in the repository must be provided, as well as a brief description of each document in the repository. The Permittee must visit the repository on a regular basis to ensure its organization and integrity is maintained.
2. The public participation and public notification requirements of 35 Ill. Admin. Code 703 and 705 must be met any time requests to modify this facility are submitted to Illinois EPA for review and approval.
3. An appropriate facility mailing list as required by 35 Ill. Admin. Code 705 must be maintained and updated on a regular basis.

### C. REQUIRED FORMS

1. The Permittee shall provide a completed Illinois EPA permit application form LPC-PA23 with all additional information, permit modifications, and permit applications that are submitted to the Illinois EPA Bureau of Land. A copy of this form is available on Illinois EPA's internet site.

2. To ensure the requirements of Section 39, Paragraph (i) of the Illinois Environmental Protection are met, the Permittee is required to complete and provide the following 39i Certification forms to the Illinois EPA Bureau of Land:
  - a. A 39i certification form for legal entities must be filled out for the legal entity (i.e. company) identified as the applicant in the approved Permit Renewal Application, and
  - b. A 39i form for individuals must be filled out for the individual that signs the 39i certification form for legal entities mentioned above, and
  - c. A 39i form for individuals must be filled out for each individual who signs the permit application.
3. Copies of the 39i certification forms identified in Condition VII.C.2 above are available on Illinois EPA's internet site.
4. If the applicant desires additional staff to be able to sign future modifications, certifications, etc., then 39i certification forms for individuals must be submitted for each such individual.
5. The 39i certification forms will be treated as confidential by the Illinois EPA. The applicant may also request the information on the 39i certification form be maintained confidential in accordance with 2 Ill. Adm. Code 1828.
6. The Permittee shall submit the necessary 39i certification form(s) and supporting documentation within 30 days of any of the following events:
  - a. The owner or operator, or officer of the owner or operator, or any employee who has control over operating decisions regarding the facility has violated federal, State, or local laws, regulations, standards, or ordinances in the operation of waste management facilities or sites; or
  - b. The owner or operator, or officer of the owner or operator, or any employee who has control over operating decisions regarding the facility has been convicted in this or another State of any crime which is a felony under the laws of this State, or conviction of a felony in a federal court; or
  - c. The owner or operator, or officer of the owner or operator, or any employee who has control over operating decisions regarding the facility has

committed an act of gross carelessness or incompetence in handling, storing, processing, transporting, or disposing of waste.

- d. A new person is associated with the owner or operator who can sign the permit application or who has control over operating decisions regarding the facility, such as a corporate officer or a delegated employee.

The 39i certification submitted in accordance with a, b, or c above must describe the violation(s), convictions, carelessness, or incompetence which necessitated the need for submitting an updated certification form. The 39i certification submitted in accordance with d above must include the date that the new person above began employment with the applicant.

- 7. The 39i certification forms and supporting documentation shall be submitted to the address specified below:

Illinois Environmental Protection Agency  
Bureau of Land #33 – 39i Certification  
1021 North Grand Avenue East  
P.O. Box 19276  
Springfield, Illinois 62794-9276

## SECTION VIII: REPORTING AND NOTIFICATION REQUIREMENTS

### SECTION III: POST-CLOSURE

<u>Condition</u>	<u>Submittal</u>	<u>Due Date</u>
C.5	Permit modification request to change any aspect of the approved post-closure care plan.	180 days prior to date change is needed
E.1	Construction details of additional gas monitoring probe outside waste boundary.	After installation of probe
E.2	Construction details of three gas monitoring probes within boundary.	After installation of probe
E.7.b.	Notification of exceedances of specified levels detected during the required landfill gas monitoring program	Within two business days
E.7.d	Reports documenting action being taken to address land gas monitoring exceedances.	Weekly
E.7.e	Class 1* permit modification request proposing changes to the approved landfill gas management plan.	30 days after landfill gas monitoring program exceedances observed, unless able to correct these exceedances prior to this due date.
H.2	Annual Report regarding post-closure care efforts carried out each year.	March 1 of following year
J.5	Submit notification that post-closure contact person has changed.	Within 5 days after change is made.

<u>Condition</u>	<u>Submittal</u>	<u>Due Date</u>
K.1	Submit documentation that survey plat and restrictive notice have been properly distributed/recorded.	Within 60 days of the effective date of this permit.
K.2	Submit application for permit modification, if the Permittee wishes to remove any materials from the closed landfill.	At least 180 days prior to the date that wish to remove the materials.
K.3	Submit certification for completion of post-closure care.	Within 60 days after post-closure care has been completed.

#### SECTION IV: GROUNDWATER DETECTION MONITORING PROGRAM

<u>Condition</u>	<u>Submittal</u>	<u>Due Date</u>
J.2	Groundwater monitoring data and statistical calculations required semi-annually.	Samples Collected During Preceding <u>Mos. of</u> April-June Results Due to <u>EPA by</u> July 15 October-December January 15
J.3	Groundwater Surface Elevation.	Semi-annually
J.4	Groundwater flow rate and direction.	Annually with the groundwater data data due July 15
J.5	Surveyed Elevation.	Every 5 years <u>or</u> at the request of Illinois EPA <u>or</u> whenever the elevation changes. In addition, for new wells, at the time of installation.

<u>Condition</u>	<u>Submittal</u>	<u>Due Date</u>
J.6	Elevation of the bottom of each well.	Every 5 years due July 15.
J.10.a	Notify the Illinois EPA in writing of statistically significant increase.	Within 7 days the increase was discovered.
J.10.b	Sample groundwater in all wells for Appendix I constituents.	Immediately after increase is discovered.
J.10.d	Apply for permit modification establishing compliance monitoring program.	Within 90 days the increase was discovered.
J.10.e	Provide the Illinois EPA with corrective action feasibility plan.	Within 180 days the increase was discovered.
J.11.a	Notify the Illinois EPA in writing of intent to make demonstration.	Within 7 days the increase was discovered.
J.11.b	Submit a report to the Illinois EPA which demonstrates that a source other than a regulated unit caused the increase, or resulted from error.	Within 90 days the increase was discovered.
J.11.c	Submit to the Illinois EPA application to change detection monitoring program.	Within 90 days the increase was discovered.

#### SECTION IV-A: SHALLOW ZONE OBSERVATION MONITORING PROGRAM

<u>Condition</u>	<u>Submittal</u>	<u>Due Date</u>										
I.2	Groundwater monitoring data and statistical calculations required semi-annually.	<table><tr><th>Samples Collected</th><th>Results</th></tr><tr><td>During Preceding</td><td>Due to</td></tr><tr><td><u>Mos. of</u></td><td><u>EPA by</u></td></tr><tr><td>April-May</td><td>July 15</td></tr><tr><td>October-December</td><td>January 15</td></tr></table>	Samples Collected	Results	During Preceding	Due to	<u>Mos. of</u>	<u>EPA by</u>	April-May	July 15	October-December	January 15
Samples Collected	Results											
During Preceding	Due to											
<u>Mos. of</u>	<u>EPA by</u>											
April-May	July 15											
October-December	January 15											
I.3	Groundwater Surface Elevation.	Semi-annually										

<u>Condition</u>	<u>Submittal</u>	<u>Due Date</u>
I.4	Surveyed Elevation.	Every 5 years <u>or</u> at the request of Illinois EPA <u>or</u> whenever the elevation changes. In addition, for new wells, at the time of installation.
I.5	Elevation of the bottom of each well.	Every 5 years due July 15.
I.9.a	Notify the Illinois EPA in writing of significant increase.	Within 7 days the increase was discovered.
I.9.b	Sample Groundwater in all wells for Appendix I.	Immediately after increase discovered.
I.9.d	Apply for a permit modification establishing a compliance monitoring program.	Within 90 days the increase was discovered.
I.9.e	Provide the Illinois EPA with a corrective action feasibility plan.	Within 180 days the increase was discovered.
I.10.a	Notify the Illinois EPA in writing of intent to make demonstration.	Within 7 days the increase was discovered.
I.10.b	Submit a report to the Illinois EPA which demonstrates that a source other than a regulated unit caused the increase, or resulted from error.	Within 90 days the increase was discovered.
I.10.c	Submit to the Illinois EPA application to change shallow zone observation monitoring program.	Within 90 days the increase was discovered.

SECTION V: CORRECTIVE ACTION

<u>Condition</u>	<u>Submittal</u>	<u>Due Date</u>
B.1	Notification of Newly Identified SWMUs.	Within 30 days of discovery.
C	Notification of release from existing SWMU.	Within 60 days of discovery
E.3	Updating financial assurance for corrective action.	As necessary.

SECTION VI: STANDARD CONDITIONS

<u>Condition</u>	<u>Submittal</u>	<u>Due Date</u>
B.6	Complete application for new permit.	At least 180 days prior to permit expiration.
B.11	Information requested by Agency and copies of records required to be kept by the Agency.	Submittal date to be determined by this permit.
B.14	Notify Agency of planned physical alterations or additions.	At least 15 days prior to planned change.
B.15	Notify Agency of changes which may result in permit noncompliance.	Within 15 days of change.
B.16	Application for permit modification indicating permit is to be transferred.	At least 90 days prior to transfer date.
B.18	Submission of any information required in a compliance schedule.	Within 14 days after each schedule date.
B.19.	Report to Agency any non-compliance which may endanger health or environment.	

<u>Condition</u>	<u>Submittal</u>	<u>Due Date</u>
	by telephone	Within 24 hours after discovery, and
	in writing	5 days after discovery.
B.20	Report of all other instances of non-compliance.	March 1 of each year along with Annual Report.
B.22	Annual Report	March 1 of each year (for previous calendar year)
C.2	Application for permit modification amending post closure plan.	Within 90 days of discovery of need for modification.
C.3.a.	Adjust post closure cost estimate for inflation.	Within 30 days after anniversary date.
C.3.b	Revision of post closure cost estimate.	As needed, within 90 days of discovery of revision.
C.4	Change in financial assurance mechanism for post closure care.	As needed.
C.5	Change in coverage for sudden and non-sudden accidental occurrences.	As needed.
C.6	Notify Agency of commencement of voluntary or involuntary bankruptcy proceedings.	Within 10 days after commencement of proceeding.

SECTION VII: SPECIAL CONDITIONS

<u>Condition</u>	<u>Submittal</u>	<u>Due Date</u>
C.6	Submittal of updated 39(i) Certification Forms	Within thirty days after an event occurs which impacts the 39(i) certifications for the facility on file with Illinois EPA

HAZARDOUS WASTE MANAGEMENT  
RCRA POST-CLOSURE PERMIT

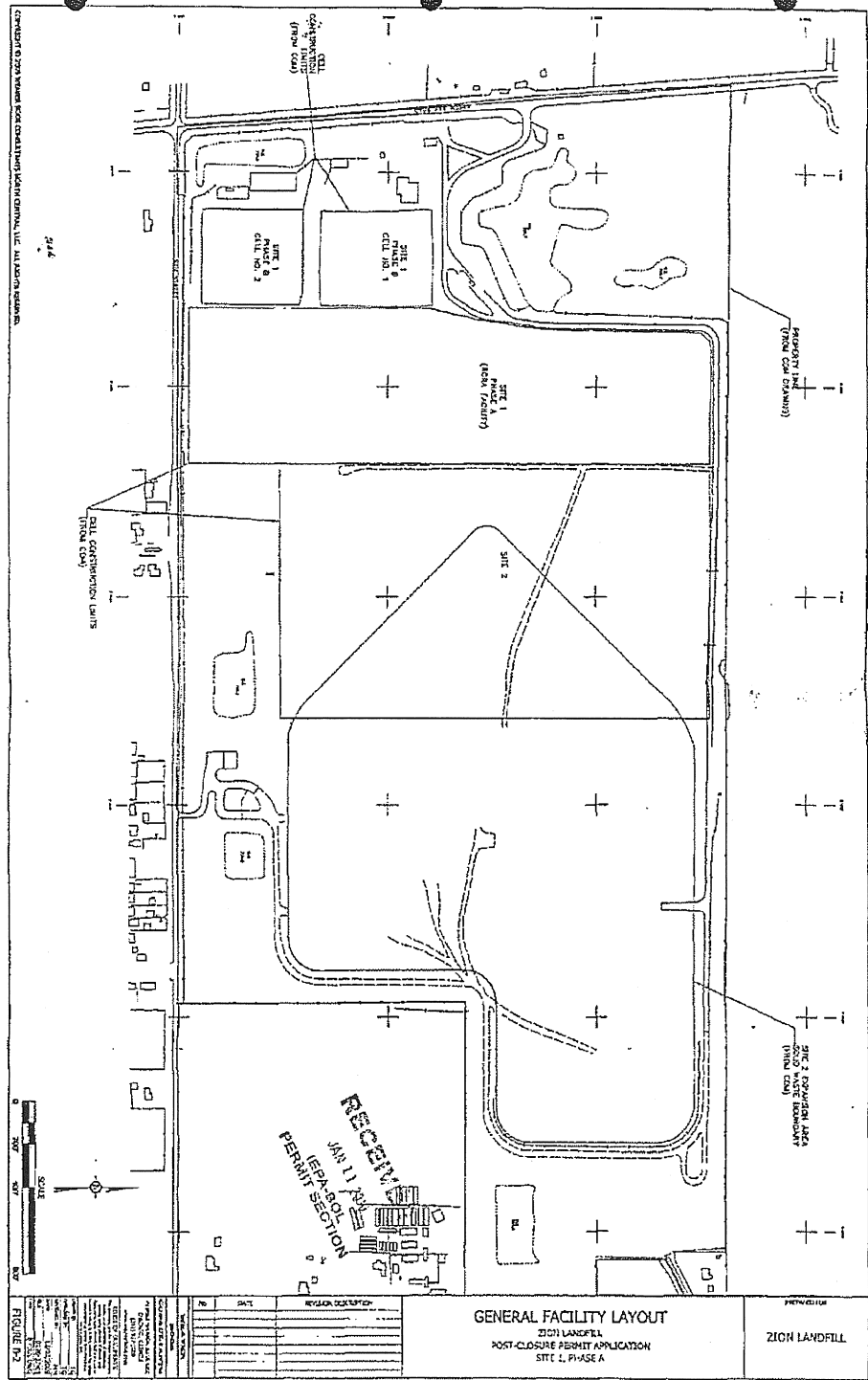
Log No. B-23R-M-3

Zion Site 1 Landfill

LPC No. 0978020001

USEPA ID No. ILD980700728

Attachment A: Site Layout Map



HAZARDOUS WASTE MANAGEMENT  
RCRA POST-CLOSURE PERMIT

Log No. B-23R-M-3

Zion Site 1 Landfill

LPC No. 0978020001

USEPA ID No. ILD980700728

Attachment B: Groundwater Monitoring Attachments

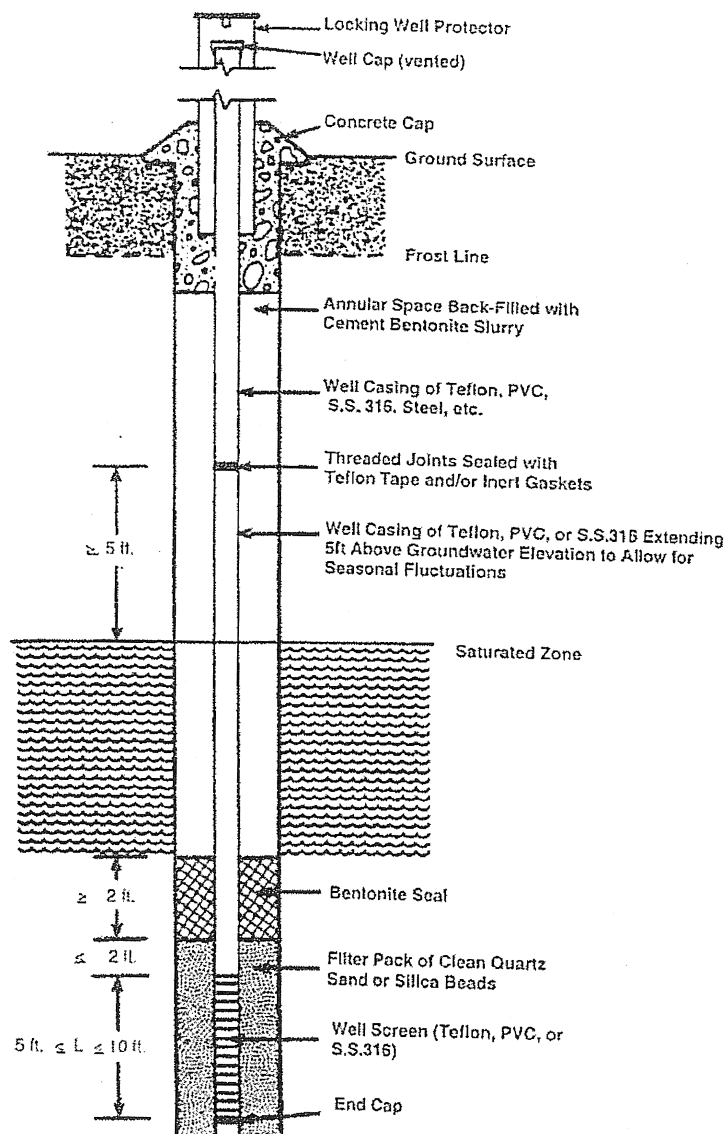
Monitoring Well Diagram (1 page)

Field Boring Log (1 page)

RCRA Facility Groundwater, Leachate and Gas Reporting Form (1 page)

Formatting Requirements for Electronically Submitted Groundwater and Leachate Data (3 pages)

## Monitoring Well Diagram





## Page \_\_\_\_ of \_\_\_\_

County: \_\_\_\_\_

Boring No. \_\_\_\_\_ Monitoring Well No. \_\_\_\_\_

Surface Elevation: \_\_\_\_\_ Completion Depth: \_\_\_\_\_

Auger Depth: \_\_\_\_\_ Rotary Depth: \_\_\_\_\_

Date: Start: \_\_\_\_\_ Finish: \_\_\_\_\_

Drilling Equipment: \_\_\_\_\_

Field Boring Log (revised 02/02/04)



Illinois  
Environmental  
Protection Agency

Bureau of Land  
1021 North Grand Avenue East  
Box 19276  
Springfield, IL 62794-9276

## RCRA FACILITY GROUNDWATER, LEACHATE AND GAS REPORTING FORM

This form must be used as a cover sheet for the notices and reports, identified below as required by: (1) a facility's RCRA interim status closure plan; (2) the RCRA interim status regulations; or (3) a facility's RCRA permit. All reports must be submitted to the Illinois EPA's Bureau of Land Permit Section. This form is for use by Hazardous Waste facilities only. Reporting for Solid Waste facilities should be submitted on a separate form. All reports submitted to the Illinois EPA's Bureau of Land Permit Section must contain an original, plus a minimum of two copies.

Note: This form is not to be used with permit or closure plan modification requests. The facility's approved permit or closure plan will state whether the document you are submitting is required as a report or a modification request.

Facility Name: \_\_\_\_\_ Site ID #: \_\_\_\_\_  
Facility Address: \_\_\_\_\_ Fed ID #: \_\_\_\_\_

Check the appropriate heading. Only one heading may be checked for each corresponding submittal. Check the appropriate sub-heading, where applicable. Attach the original and all copies behind this form.

- \_\_\_\_ LPC-160 Forms
- |  |  |
|--|--|
| ____ <u>Groundwater</u>                | ____ <u>Leachate</u>                   |
| ____ Quarterly – Indicate one: 1 2 3 4 | ____ Quarterly – Indicate one: 1 2 3 4 |
| ____ Semi-Annual                       | ____ Semi-Annual                       |
| ____ Annual                            | ____ Annual                            |
| ____ Biennial                          | ____ Biennial                          |
- \_\_\_\_ Groundwater Data (without LPC-160 Forms)
- \_\_\_\_ Quarterly – Indicate one: 1 2 3 4
- \_\_\_\_ Annual      \_\_\_\_ Semi-Annual      \_\_\_\_ Biennial
- \_\_\_\_ Well Construction Information
- \_\_\_\_ Well Construction Forms, Boring Logs and/or Abandonment Forms
- \_\_\_\_ Well Survey Data (e.g., Stick-up Elevation Data)
- \_\_\_\_ Notice of Statistically Significant Evidence of Groundwater Contamination  
(35 Ill. Adm. Code 724.198)
- \_\_\_\_ Notice of Exceedence of Groundwater Concentration Limit (35 Ill. Adm. Code 724.199(h))
- \_\_\_\_ Notice of Alternate Source or Error in Sampling Analysis or Evaluation of Groundwater  
(35 Ill. Adm. Code 724.199(i))
- \_\_\_\_ Gas Monitoring Reports
- \_\_\_\_ Other (identify) \_\_\_\_\_

Formatting Requirements for the 01 Record of the Electronically Submitted  
Groundwater and Leachate Data (the 01 Record portion of the LPC-160 is included  
for example purposes)

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY  
DIVISION OF LAND POLLUTION CONTROL  
CHEMICAL ANALYSIS FORM

Page 1 of \_\_\_\_\_

RECORD CODE							TRANS CODE	
L	P	C	S	M	0	1	A	
1					7		8	
REPORT DUE DATE ____/____/____								
36 M D Y 41								

FEDERAL ID NUMBER \_\_\_\_\_

SITE INVENTORY NUMBER	____	MONITOR POINT NUMBER	____
9	18	(see Instructions)	19 22
REGION	____ CO. ____	DATE COLLECTED	____/____/____
		23 M D Y 28	
FACILITY NAME _____			

FOR IEPA USE ONLY
LAB _____
29
DATE RECEIVED ____/____/____
42 M D Y 47

BACKGROUND SAMPLE (X) \_\_\_\_\_ TIME COLLECTED \_\_\_\_:\_\_\_\_:\_\_\_\_  
54 (24 Hr. Clock) 55 11 M 58

UNABLE TO COLLECT SAMPLE \_\_\_\_\_  
(see Instructions) 59

MONITOR POINT SAMPLED BY \_\_\_\_\_  
(see Instructions) 60 OTHER (SPECIFY) \_\_\_\_\_

SAMPLE FIELD FILTERED — INORGANICS (X) \_\_\_\_\_ ORGANICS (X) \_\_\_\_\_  
61 62

SAMPLE APPEARANCE \_\_\_\_\_  
63

COLLECTOR COMMENTS \_\_\_\_\_  
102  
103

LAB COMMENTS \_\_\_\_\_  
142  
150  
199

IL 532 1213  
LPC 160 01/90

This Agency is authorized to require this information under Illinois Revised Statutes, 1979, Chapter 111 ½, Section 1004 and 1021. Disclosure of this information is required. Failure to do so may result in a civil penalty up to \$25,000 for each day the failure continues a fine up to \$1,000.00 and imprisonment up to one year. This form has been approved by the Forms Management Center.

All analytical procedures must be performed in accordance with the methods contained in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods," SW-846, 3<sup>rd</sup> Edition, September 1986 or equivalent methods approved by the Agency. Proper sample chain of custody control and quality assurance/quality control procedures must be maintained in accordance with the facility sampling and analysis plan.

\*Only Key punch with Data in Column 35 or Columns 38-47

**KEY:**

	<u>Description</u>	<u>Format</u>
Spaces 1-7	Record Code	LPCSM01
Space 8	Trans Code	A
Spaces 9-18	Site ID	0000000000
Spaces 19-22	Mon Pt ID	G000
Spaces 23-28	Date Collected	000000
Space 29	Lab	
Spaces 30-35	Filler	
Spaces 36-41	Report Due Date	000000
Spaces 42-47	Date Received	000000
Spaces 48-53	Filler 2	
Space 54	Background Sample	
Spaces 55-58	Time Collected	0000
Space 59	Unable to Collect Sample	
Space 60	Monitoring Point Sampled By	
Space 61	Field Filtered – Inorganic	
Space 62	Field Filtered – Organic	
Spaces 63-102	Sample Appearance	
Spaces 103-142	Collector Comments	
Spaces 143-149	Filler 3	
Spaces 150-199	Lab Comments	

0978020001  
 Zion Site 1 Landfill  
 Log No. B-23R-M-3  
 Attachment B  
 Page 6 of 6

**Formatting Requirements for the 02 Record of the Electronically Submitted  
 Groundwater and Leachate Data (the 02 Record portion of the LPC-160 is included  
 for example purposes)**

RECORD CODE		L	P	C	S	M	0	2	TRANS CODE		A	(COLUMNS 9-29 FROM ABOVE)
		1					7		8			

	FIELD MEASUREMENTS CONSTITUENT DESCRIPTION AND REQUIRED UNIT OF MEASURE	STORET NUMBER	Remarks See Inst.	Replicate	< or >	VALUE
Q	TEMP OF WATER (unfiltered °F)	0 0 0 1 1				----- . -----
Q	SPEC COND (unfiltered umhos)	0 0 0 9 4				----- . -----
Q	pH (unfilted units)	0 0 4 0 0				----- . -----
Q	ELEV OF GW SURF (ft ref MSL)	7 1 9 9 3				----- . -----
Q	DEPTH OF WATER (ft below LS)	7 2 0 1 9				----- . -----
A	BTM WELL ELEV (ft ref MSL)	7 2 0 2 0				----- . -----
Q	DEPTH TO WATER FR MEA PT (ft)	7 2 1 0 9				----- . -----
						----- . -----
						----- . -----

IL 532 1213  
 LPC 160 01-90

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\*Only Key punch with Data in Column 35 or Columns 38-47

**KEY:**

<u>Spaces Numbered</u>	<u>Description</u>	<u>Format</u>
Spaces 1-7	Record Code	LPCSM02
Space 8	Trans Code	A
Spaces 9-18	Site ID	0000000000
Spaces 19-22	Mon Pt ID	
Spaces 23-28	Date Collected	
Space 29	Lab	
Spaces 30-34	STORET Number	
Space 35	Remarks	
Space 36	Replicate	
Space 37	< or >	
Space 38-47	Value	